BUSINESS SPEECHES
BY
BUSINESS MEN

If all my possessions and powers were to be taken from me with one exception, I would choose to keep the power of speech, for by it I could soon recover all the rest.

—DANIEL WEBSTER

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BUSINESS SPEECHES

BY

BUSINESS MEN

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FIRST EDITION

McGRAW-HILL BOOK COMPANY, INC.
NEW YORK: 370 SEVENTH AVENUE
LONDON: 6 & 8 BOUVERIE ST., E. C. 4
1930

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PRINTED IN THE UNITED STATES OF AMERICA
BY THE VAIL-BALLOU PRESS, INC., BINGHAMTON, N. Y.

To

THE BUSINESS LEADERS
Whose courtesy has made
this collection possible

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PREFACE

America's business leaders have not overlooked the importance of the spoken word. Thousands of addresses by executives of great corporations, by officials of national associations, and by individual business and professional men are presented yearly. National associations, group conferences, and luncheon clubs have been organized, all demanding good speaking. The goodwill programs of great businesses have included, not only written articles and advertisements, but public addresses by their representatives. Great economic issues have been discussed; more important still, perhaps, the public speech has been adapted to the internal affairs of business organizations. Meetings of company executives, salesmen, and other groups are addressed. The realization on the part of business men of the importance of forceful, persuasive speech is illustrated by the fact that one great corporation alone has *fourteen times* engaged the services of a well-known lecturer on this subject; by the recent establishment of schools of instruction within organizations; and by the publication of handbooks for speakers of various companies.

That efficiency in speaking, public and private, is an aid to success is a point too well accepted to need argument here. Great business leaders have forged to the front partly because of their ability to deal tactfully, interestingly, and persuasively with their associates. Students of business, and younger business men, are studying the art of speaking in ever increasing numbers. They realize its value as an aid to advancement and as a means of making the conduct of business, both in the internal affairs of a concern and in public relations, more efficient.

It is to illustrate fully the principles of effective business speaking that we present this collection of "Business Speeches by Business Men." It is intended to be a companion volume to our manual, "Business and Professional Speaking." In making this collection, we have examined over two thousand recent speeches by business and professional leaders. We have selected approximately seventy-five addresses. These talks come from the actual firing line of business. They deal with business subjects. Many of them discuss the intimate internal affairs of business organizations. They represent an effective use of the principles discussed in our former book. They will serve as models for the business man and for the student of business.

In footnotes, we have made proper acknowledgment to the business and professional leaders, as well as associations, who have given us permission to reproduce their speeches here. Their cooperation has made this collection possible. We wish also to express our indebtedness to our former colleague, Virgil L. Baker, now Assistant Professor of Public Speaking in the University of Arkansas, for his assistance in collecting the speeches from which our selection was made.

W. P. SANDFORD
W. H. YEAGER

Urbana, Ill.,
January, 1930.

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BUSINESS SPEECHES BY BUSINESS MEN

INTRODUCTION

THE TYPES OF BUSINESS SPEECHES

Common Elements of Importance

All speeches have certain points in common. They aim to instruct, persuade, or entertain the hearer. In order to accomplish any of these purposes, they must contain *the elements of interestingness*—the vital, the striking, the concrete, the familiar, the varied. By the *vital* it is meant that the ideas in the speech must appeal to the wants and desires of the audience; that the speaker must appeal to their primary or secondary interests. By the *striking* is meant the use of startling, unusual, and vivid material, vividly stated and presented. By the *concrete* is meant definite, factual material, definitely and clearly stated. By the *familiar* is meant the use of facts and ideas which have been experienced by the hearer, and the use of words which are within his ready understanding. It is by the use of these elements of interestingness that speakers hold the attention of their audiences.

Again, speeches have a common structure, or layout. The *specific purpose* is the precise object sought by the speaker. To achieve that object he selects a few carefully chosen *main ideas,* which form the framework of his speech, and which, when understood, believed, or appreciated by the hearer, will lead to the desired result. To support and develop the main ideas, certain *speech details* are requisite: reiteration, specific cases, testimony, comparison, statistics. *Reiteration* is the repetition of statements, either in the original words or in synonyms. It is an important means of forcing attention to ideas. *Specific cases* are actual examples which support the speaker's ideas. *Testimony* is the word of others, either witnesses or experts on the subject discussed. *Comparisons* bring out the similarity between the facts and ideas discussed by the speaker and other facts and ideas which are familiar to the audience. *Statistics* are mathematical compilations used to give information or proof in condensed and authoritative form. The main ideas and the speech details constitute the *body of the speech*. Finally, in the *introduction* the speaker seeks to gain the favorable attention and interest of his hearers, while in the *conclusion* he summarizes his ideas and makes an appeal for action.

Although all speeches have thus many elements in common, there is a great variety in purpose and plan in the various types of business speaking. We therefore submit short definitions of the common types of business address:[1]

DISCUSSIONS OF POLICY

Discussions of business policy occupy an important place on the program of every association meeting, as well as in the daily conferences of individual firms. To support his proposal for the adoption of a new course of action, or for the modification or abandonment of an old one, the speaker must be well grounded in the art of argumentation. He must know precisely how to define and delimit his proposal; how to find logical reasons for its acceptance; how to support his arguments with valid evidence; and how to dispose of contrary arguments. Finally, he must know how to clothe his address in persuasive words, and how to make his appeal for action.

THE INSPIRATIONAL SPEECH

The inspirational speech is one designed to revive enthusiasm and faith. It is of frequent use at association meetings, company sales meetings, and the like, and also finds a place in the dealings of an executive with his subordinates. It calls for skill in analyzing the hearer, in removing sources of discouragement, in inspiring the hearer to greater efforts and renewed enthusiasm, and in directing efforts and enthusiasm into the proper channels.

THE GOODWILL SPEECH

To attract the favorable attention of the public to the speaker's company or industry as a whole is the function of this type of business speaking. The meetings of luncheon clubs, associations, school assemblies, and similar gatherings give frequent opportunities for goodwill speaking. Generally the speaker can make no direct "sales appeal," but rather seeks to give useful and interesting information about his work or the work of his company. The goodwill thus attained reacts favorably to the speaker and to the institution which he represents. So important is this type of speaking that, in one year, public utility representatives made 1,800 such addresses in one state.

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[1] For detailed discussions of these types, and of *the personal conference*, see W. P. Sandford and W. H. Yeager, "Business and Professional Speaking," McGraw-Hill Book Co., Inc., New York, 1929.

The Sales or Promotional Talk

The sales talk, seeking immediate action, and the promotional talk, which builds a pathway for later action, require the highest type of persuasive speaking. The wants, desires, and interests of the audience must be dealt with in a skillful manner. All of the vividness, interestingness, and variety of which the speaker is capable must be used if the desired action is to be forthcoming. Although association meetings and similar gatherings rarely permit the direct sales appeal, the promotional talk may frequently be used, and sales consummated later.

Instructions and Explanations

Executives are called upon constantly to give oral instructions and explanations to their subordinates. Again, expository speeches of this nature are often called for on the programs of group meetings. Clearness, definiteness, and completeness, plus adaptation to the understanding and intelligence of the hearer, are required. Efficiency in giving instructions and explanations will obviate many unnecessary errors in the conduct of a business.

The Oral Report

Similar to the speech of instruction and explanation, but embodying the result of research and investigation, the oral report claims an important place among the types of business address. Thorough study of the problem upon which the report is to be made, a careful organization of the various topics, completeness and accuracy in the presentation of details, and in some cases expert recommendations based upon the conclusions reached, are necessary. In many cases such reports are accompanied by statistical tables and charts, which require thorough preparation and clear presentation.

SPEECHES OF COURTESY

The business man is often called upon to make speeches of introduction, presentation, acknowledgment, acceptance, eulogy, and the like. Tact and skill in such situations are a distinct asset to him, creating both institutional and personal goodwill. Speeches of courtesy, as they are called, require appropriate, relevant, interesting, and, usually, brief remarks. Consideration, therefore, of the occasion and audience becomes especially important.

THE AFTER-DINNER SPEECH

Although reports, explanations, discussions of policy, inspirational speeches, goodwill speeches, promotional talks, and speeches of courtesy are on many occasions delivered at banquets, the *true* after-dinner speech is one which seeks primarily to entertain the audience by the use of the striking, the novel, and the humorous. Because of the fact that many after-dinner speeches have appeared in print, notably in such collections as *Modern Eloquence* (The Modern Eloquence Corporation, New York), we present in this volume only one of this type.

RADIO SPEAKING AND NEWS BROADCASTING

Radio speaking demands, from time to time, all of the kinds of addresses we have mentioned. The peculiar conditions of broadcasting, however, make the speaker's problem of presentation somewhat difficult, and require especially good use of the elements of interestingness, as well as brevity. Throughout this collection are a number of speeches of various types which were given over the air. In addition to these, we include one "news broadcast," a description of a great political event by a radio announcer, which illustrates not only this new form of public speaking but the qualities of vividness that radio speeches, in general, should possess.

PRACTICALITY OF THESE MODELS

Business men and students of business speaking will find the speeches, which we have gathered for this collection, of assistance in the preparation of their addresses. In regard to subject matter, many lines of commerce and industry are here represented. More important, however, is the fact that the speaker will find in this book numerous examples of each of the types of business speaking. They include, we believe, the best speeches on business subjects given in America during the last few years.

Not only will the study of these speeches assist the speaker in planning talks of his own for public occasions. Since the personal conferences and interviews of daily business life demand, at one time or another, all of the types of speaking in this collection, with the exception of radio talks, much will be found that will be helpful in daily contacts with fellow executives and employees.

I

DISCUSSIONS OF POLICY

THE VITAL NEED FOR GREATER FINANCIAL SUPPORT OF PURE SCIENCE RESEARCH[1]

HERBERT HOOVER

President Hoover, then Secretary of Commerce, delivered this address upon the Henry Robinson Towney Lectureship before the American Society of Mechanical Engineers, New York City, Dec. 1, 1925.

I wish on this occasion to say something upon our great national need of a much more vigorous support to pure science research in our country.

There is no body of men more interested in the advancement of pure science than our engineers, for the engineering profession is built upon the application of scientific discovery. And of larger vision, if we would command the advance of our material, and to a considerable degree, of our spiritual life, we must maintain the earnest and organized search for truth. We could well put such an appeal wholly upon moral and spiritual grounds; the unfolding of beauty, the aspiration to knowledge, the ever widening penetration into the unknown, the discovery of truth, and finally, as Huxley says, "the inculcation of veracity of thought." All are ample justification for our finding dollars to keep these searchers alive. But as I am proposing to support an appeal for dollars, I propose to discuss the dollars' results as well.

Research in the biological and physical sciences takes two forms: industrial research (which is the application of science), and research in pure science. Obviously, there must first be a pure science before there can be an application. I am aware that there is a twilight zone between them, but no scientist has difficulty in finding the borders.

While we have in recent years developed our industrial research upon a scale hitherto unparalleled in history, we have by no means kept pace in the development of research in pure science. We have an increase in some ten years from one hundred to over five hundred laboratories engaged upon search for applications of known scientific fact and law. These results have been magnificent. But all these applied science laboratories are dependent upon the raw material which flows from the laboratories and men engaged in pure science. And the industrial investigators are the first to demand more support to pure science.

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[1] By permission of President Hoover. Reprinted from the *Reprint and Circular Series,* Number 65, of the National Research Council.

Not only is our Nation greatly deficient in the number of men and equipment for this patient groping for the sources of fundamental truth and natural law, but the sudden growth of industrial laboratories has in itself endangered pure science research by drafting the personnel of pure science into their ranks—depleting at the same time not only our fundamental research staff, but also our university faculties, and thus to some degree drying the stream of creative men at the source. Thus applied science itself will dry up unless we maintain the sources of pure science. This is no complaint against our great industries and their fine vision of the application of science. It simply means we must strengthen the first line of our offensive. The day is gone by when we can depend very much upon consequential discovery or invention being made by the genius in the garret. A host of men, great equipment, long patient scientific experiment to build up the structure of knowledge, not stone by stone, but grain by grain, is the fundamental source of invention and discovery.

Compared with other expenditures of far less importance to human welfare, the amount of money annually devoted in the United States to the aid of investigators and investigation in pure science is absurdly small. It is less than one-tenth of what we spend on cosmetics. We have indeed some fine foundations for pure scientific research—the Carnegie Institution, the Smithsonian Institution, the Rockefeller Institute, and the many other research activities of much more limited but special endowments, the work of our universities, together with the work of the National Research Council and our Government agencies, have shown fine accomplishment in this field. But the whole of the income available from these sources for research in pure science certainly does not exceed $10,000,000 a year—whereas in the professional schools of our universities, in technical and agricultural colleges and experiment stations, in industrial laboratories, and in our Government bureaus we probably expend $200,000,000 a year upon applied science research.

The wealth of the country has multiplied far faster than the funds we have given for these pure science purposes. And the funds administered in the Nation for it are but a triviality compared to the vast resources that a single discovery places in our hands. Men of science know, from their own experience, how seriously scientific work has been impeded by lack of resources, and they will appreciate how great, in the aggregate, must be the resulting loss to the Nation and to the world.

The progress of civilization, as all clear-thinking historians recognize, depends in large degree upon "the increase and diffusion of knowledge among men." It is not merely a question of applying present-day science to the development of our industries, the reduction of the cost of living, the eradication of disease, and the multiplication of our harvests, or even the diffusion of knowledge. We must add to knowledge, both for the intellectual and spiritual satisfaction that comes from widening the range of human understanding, and for the direct practical utilization of these fundamental discoveries. A special study in an industrial laboratory, resulting in the improvement of some machine or process, is of great value to the world. But the discovery of a law of nature, applicable in thousands of instances and forming a permanent and ever available addition to knowledge, is a far greater advance.

Radio communication would have remained not merely impossible but wholly inconceivable except for the fundamental experiments of Faraday, the mathematical formulation of the wave theory by Maxwell, and the experimental realization of Maxwell's predictions by Hertz; successive advances in knowledge made without thought of immediate application or financial return.

No newspaper headlines noticed Becquerel's discovery of radio activity from which long after sprang the whole train of discoveries leading to radium and its vast human service. No one reads in the popular journals of the theory of the hydrogen ion. We do hear sometimes of the effect in economy and production that its understanding is having upon scores of industrial processes, but how many know the name of the scientist who has added billions in money value to the world? And I am not sure he had even a stenographer to save his time in his race in search of other laws. The rise of the Einstein theory, which has revolutionized physical science and fundamentally affected modern thought, was rendered possible by the most abstruse developments of mathematics over long terms of years, and who may say that some day it may not become the raw material of our industrial laboratories with a fine outpouring of benefits in added human comfort and convenience?

If we were to survey the Nation we should find that the technically trained men engaged in pure science research fall into two main groups; on one hand, those supported in the great pure science research institutions, and on the other, those in our universities or engaged in individual investigation. The number supported by our pure science research institutions, such as the Carnegie, Rockefeller, Smithsonian, and others probably does not exceed five hundred technically trained men. Those engaged in pure science research in our universities or upon their own resources probably do not exceed five thousand, and most of these devote only part of their time to this work. And there are some men in our industrial laboratories who are engaged in pure science work. It is an interesting contrast that the scientifically trained personnel in applied science investigation today probably exceeds thirty thousand.

The problem as I see it is to secure much larger support—

First, to our university men, in order that they may be able to give a larger proportion of their time to research, and that our universities may increase the number of men.

Second, to coordinated research for certain definite purposes.

Third, to the pure science research institutions.

It is on the men in independent research and in our educational institutions that the great burden of scientific advancement must always rest, and from them that the inspiration of the younger generation of oncoming scientific workers is derived. What we need above all things is the better support of these men. They should not, by the necessities of living and the cost of equipment, be forced into our industrial laboratories. Those men who show an aptitude for research should be less engulfed in teaching. Often their productivity can be greatly aided by being released from teaching and administrative demands and endowed in research positions. Much can also be done by providing them with instruments, skilled assistants, measurers, computers, and stenographers, and all the aids that the nature of their researches and the most economical use of their time may demand. To attempt to herd them into great laboratories even for pure research is often their least useful service. To alter their mode of life and thought would merely result in the exhaustion at the source of the vital essence of their success. Moreover, the very researches which they prosecute and the discoveries they achieve demand just such concentration of attention and originality of perception as their freedom tends to foster.

There is no price that the world could not afford to pay to these men who have the originality of mind to carry scientific thought great strides—and they wish no price. They need opportunity to live and work. No one can estimate the value to the world of an investigator like Faraday. Our whole banking community does not do the public service in a year that Faraday's discoveries do us daily. As national assets, men of his type, even when much less gifted than Faraday in the past and Millikan today, are beyond valuation, and no effort should be spared to facilitate their work. Only thus can they be reasonably expected to make the best use of their willingness to advance knowledge and therefore civilization, without thought of personal gain.

The universities in which most of them are employed are not to be blamed for this, because they do maintain vital interest in research and they would be glad to devote much larger sums to its support if the pressure of other demands would permit. In seeking assistance elsewhere the investigator encounters ample good will, but sadly inadequate means. We may make these academic posts so attractive to the student of science that he will seek and occupy them permanently because of the opportunities they afford him to advance knowledge by original research without anxiety for bread and family and equipment. It is true that money can not buy genius, but many a genius in science has defaulted because he has had to eat.

Aside from direct support to these men there is another method of organization of research among them that is no less in need of support. That is, coordinated research in specific directions by men in different localities—again, men mostly in our universities. Some of these are broad inquiries, demanding the joint consideration of specialists from various fields of science. Others are of narrowed scope but of such character or magnitude that the combined efforts of many workers are essential for their solution. The National Research Council has organized many cooperative investigations. Such organized campaigns against the unknown are few and far between in our country, for but few men have had the vision to give them financial support. Thus, we need to find great funds which wisely directed can be used to support and stimulate the work of the many indigent investigators, the many men in our universities, the great research institutions, and to organize definite campaigns of cooperative research among them.

The third type of pure science research that requires much more liberal support is the special institution. The recent appeal of the Smithsonian for additional endowment to enable it to support a larger staff, so that it may properly compass that fraction of the field of science which has been its province, should have the support of every citizen. The Smithsonian has been peculiarly the architect of scientific investigation in our country. Much of the work we have in progress today has been inspired from this great pioneer of all American research.

It is unfortunately true that we can claim no such rank in pure science research as that which we enjoy in the field of industrial research. Instead of leading all other countries in the advancement of fundamental scientific knowledge, the United States occupies a position far in the rear of the majority of European nations. A list of the awards of the Nobel prizes to men of various nationalities reveals the small proportion of first minds that we support. Other tests lead to the same conclusion, namely, that the number of first-rank investigators developed in the United States is far below what our population, education, and wealth would lead one to expect.

The difficulty we experience in securing a place in science beside the nations of Europe can hardly be due to a lack of men of innate ability, judging from the leading part already played by the United States in finance, in architecture, and in applied science. It results partly from the fact that American civilization is only beginning to emerge from the pioneering stage, and partly from the financial and other inducements which so often lead talented men reluctantly to accept well-paid industrial positions instead of poorly-paid academic and research posts.

The far-sighted leaders of industry fully recognize the dependence of their progress upon advances in science, and emphasize their belief that fundamental research should be much more greatly aided. Dr. J. J. Carty said in his presidential address to the Institute of Electrical Engineers ten years ago:

> By every means in our power, therefore, let us show our appreciation of pure science, and let us forward the work of the pure scientists, for they are the advance guard of civilization. They point the way which we must follow. Let us arouse the people of our country to the wonderful possibilities of scientific discovery and to the responsibility to support it which rests upon them, and I am sure they will respond generously and effectively.

But the response has not yet come.

After many years of experience in industrial research he echoes the words of Tyndall spoken in New York in 1873:

> It would be a great thing for this land of incalculable destinies to supplement its achievements in the industrial arts by those higher investigations from which our mastery over Nature and over industrial art itself has been derived.

We have prided ourselves on our practicality as a Nation. Would it not be a practical thing to do to give adequate organized financial support to pure science? And if by chance we develop a little contribution to abstract learning and knowledge, our Nation will be immensely greater for it.

STATE VERSUS FEDERAL REGULATION IN THE TRANSFORMATION OF THE POWER INDUSTRY TO CENTRAL GENERATION AND INTERCONNECTION OF SYSTEMS[1]

HERBERT HOOVER

President Hoover, then Secretary of Commerce, delivered this address before the forty-eighth convention of the National Electric Light Association, San Francisco, June 17, 1925.

We are in the midst of a great transformation in the development of electrical power—it amounts almost to an industrial revolution, for it bears upon its wings the most profound advance of American industry in a generation. It is reducing the burden of human toil, it is increasing productivity, it is bringing increased comfort to our people—and it has raised some new questions in relation to governmental regulation. Among these are proposals to impose federal over state regulation of the electrical utilities.

I have been requested by your managers to speak before this great body of men engaged in this industry upon these public relations and I therefore propose to shortly review the great transformation in progress in order to better illuminate the working of the present safeguards to public interest and the shifts needed to meet new conditions. And I wish your indulgence for a few remarks upon the responsibility of the industry to the public.

I do not propose to refer to this evolution as either "superpower" or "giant power." Both these terms are blamed with connoting something that is not existent in power production. "Superpower" has been envisaged as some overwhelming sinister encroachment into public rights. "Giant power" has been interpreted by extremists to be like any giant hitherto known, having its only realism as a bogey or as entertainment for children or as a side show for the political circus. The practical everyday fact is that all this development is simply a centralization of power houses and interconnection of distribution systems. We had better stick to our engineering terms to describe what the thing really is—central generation and interconnection of distribution systems. If anybody can find evil or humor or poetry in these terms, he will need to be ingenious.

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[1] By permission of President Hoover.

I need scarcely repeat that all this great evolution starts from the scientific discovery of long-distance power transmission. From it have sprung a long train of consequences truly startling in their effect.

It has made possible great economies in steam generation through huge central units; it has made possible the wide diffusion of the great water powers. Central generation plants bring great savings of capital investment through decrease in amount of reserve adjuncts to a multitude of individual plants, and an increased use of generator capacity by combining the high night load for town lighting with the day load of industry and, generally, a wider diversification of use. Beyond this, by interconnection between different regions, even greater security and better load factors are secured. Water-power resources are expanded, for it is now possible to harness the flood flow of streams and to substitute it for steam·power during the high-water season. All this means not only cheaper operation but greater security of supply and enormous expansion in the application of electricity to much wider purposes.

Thus the lines of our power systems cross rivers and deserts, traverse fertile valleys and wooded hills and climb the passes in high mountains. They enable you to bear the burden of the great white ways by night and of the coal mines by day—they yield to you the rainfall of the north when drought has parched the south. You deliver your energy with the same delicacy of feeling to the dentist's hammer and the boiler maker, and you relieve a lot of human sweat. Our people now substitute for muscle an average of 3,300 kw.-hr. per year per family instead of 250 kw.-hr. but 10 years ago. Although they mostly do not know what a kilowatt-hour is, they know what to do with it.

The Progress Made toward Central Generation and Interconnection

We are well along the road in this evolution to central generation and interconnection. It is moving silently but stupendously before our very eyes. It is probably one-third complete. It is marked by movement in four directions. The first is the erection of highly efficient central generating stations of enormous size; second, the consolidation of town plants to form district power systems supplied from these central stations; third, the interconnection of district systems for the transfer of power between them to balance demands of one system as against the other; and fourth, transmitted power is rapidly replacing individual steam drivers and local electric generators.

At the beginning of this young century the greatest generation of power under one roof was less than 10,000 hp. Today we talk complacently about the extension of a certain plant to a million horsepower radiating from one building. And that particular infant weighed only 750 hp. when it was born 37 years ago.

Twenty-five years ago we had but one station exceeding 5,000 hp. Today we have at least 100 stations of over 100,000 hp. Central generation has made possible the big single generator, and today a single machine of 100,000 electrical horsepower is in construction. In the last five years only we have increased the total central station capacity from 13,000,000 hp. to nearly 20,000,000 hp.—almost 58 per cent. Of the increase, hydro-electric shows a rise from 8,000,000 to 9,000,000 hp. The central stations now produce more power than all the steam engines and other power produced in the country combined, outside of transportation. During the last five years the power generated at the factory and shop has actually diminished. The volume of purchased power has increased from 31 to 40 per cent in this period.

It is only natural. The ability to secure power for instant delivery and for the actual moments in which it is used instead of maintaining boilers under steam for all hours, together with the far greater fuel efficiency of the central plants, are causes enough. The best central plants are today consuming only 1½ lb. of coal as against 10 or 12 lb. per kilowatt-hour of effective power in the little plants. In central steam plants we have in the last five years alone seen a reduction of coal consumed per kilowatt-hour from 3.26 to 2.2 lb., or a saving of over 19,000,000 tons.

Concurrent with the expansion of central generation has been the evolution of the power district as distinguished from the individual town system. The outlines of these regional power districts have emerged in probably 50 per cent of the important power consuming areas of the country.

The wider interconnection between these regional systems is also proceeding apace. For this again makes use of the power capacity below the peak load by an interstate diversification. Such a flow of electricity will soon be traceable through the many regional systems continuously from Montana west to the Pacific, thence south to Mexico—a total of 1,800 miles. Shortly, power tie-ins will be completed in the Middle West and Southeastern areas, coursing all the way from Wisconsin and Michigan around through West Virginia and North Carolina to Arkansas and Louisiana. Incidentally, we have evolved a new profession—the power dispatcher, who determines which plants shall generate and at what times, hour by hour.

And it is not amiss to say something of the probable future expansion. A still larger amount of the horsepower now produced in local factories will be displaced by purchase from central stations. We are just entering the stage of electrification of transportation. Present users will increase their requirements, new uses will be discovered. The power district as distinguished from the town system is making possible the extension of service to the farms. At our present rate of increased requirements, by 1930 central stations for the country will probably need an additional capacity of fully 30 per cent, carrying them up to nearly 36,000,000 hp. Probably $5,000,000 of additional investment will be required.

The most of this increase will be supplied by steam generation. The public is generally under some illusion as to our water-power resources. In the districts east of the Mississippi, where 76 per cent of our power of all kinds is generated today, if every drop of water that is economically useful were actually harnessed, they could supply less than 15 per cent of the requirements of 1930. The future of water power lies in the Rocky Mountain and Pacific regions.

The Public Interest

There is some anxiety in the public mind as to whether public interest is or will be adequately protected in this great transformation. We must face the fact that, in order for these economies to be brought about, the power industry evolves from a single town enterprise to large district enterprises. These fundamental changes have necessitated the raising of vast sums—now nearly one billion dollars per annum. The technology of central generation and interconnection requires that the business must grow in the size of capital necessary for great power houses and district systems if we would have the benefits of low-priced power. We cannot buy 100,000 hp. generators at a ten-cent store. It implies vast consolidations, and a large number of intricate cross contracts, enormous commercial transactions, and great security issues.

That the public has a definite right and interest in these transactions is no longer a matter of dispute. We have throughout the nation, by 48 states acting independently, definitely abandoned the notion of compelling competition in electrical service as a method of holding down rates and holding up service. The states have in effect conferred definite territorial monopolies in order to avoid the fabulous duplication of equipment, investment, financial instability, operating expenses and cost to consumer that would be required to maintain competition to every householder and every factory. And when we deliberately clothe an industry with the habiliments of a monopoly, neither the industry nor the public any longer disputes the necessity of full control of rates, profits, service and finance by governmental regulation.

The real issue in this question is whether states, through their regulative powers, are already in control of the situation for the public interest.

The anxiety in the public mind over these charges is inherited from the bitter chapter of exploitation when the railroads went through a similar era of expansion, consolidation, and interconnection. No one can review that period of wild finance, plunder and corruption in transportation with any feeling of national pride or satisfaction. Things were done that never should have been done, and in reaction the public forced legislation which stifled development of American railways for years, and in the end imposed penalties in the way of inadequate facilities upon the people themselves. The railways came under regulation subsequent to their great era of transformation and exploitation. Thus, there is a very positive difference in the stage setting in this transformation of the electrical industry as compared with that which took place in transportation a generation ago. The electrical utilities have been under regulation practically from the day they were born and they are under regulation through practically the whole country today. Moreover, not only is public opinion far more alert because of its memories but, due to the local and regional character of the electrical industry, its essential economics are much better comprehended by the public and can be dealt with locally and with full understanding, which is not possible in the vast railway systems whose interests are spread over great numbers of states instead of local communities. Beyond this, the majority of the men who dominate and control the electrical utilities themselves belong to a new school of public understanding as to the responsibilities of big business to the people. The industry does not resent constant inquiry and constant public concern, for public interest. Glass pockets are the safety of the industry as well as of the public.

The Effectiveness of State Regulation

During the past year the Department of Commerce has been engaged upon a study into the effectiveness and the results of state regulation of the industry. Few people seem to realize the fullness, the extent, and the authority of the regulation now in effect. It is scarcely necessary for me to say that there is either state or municipal regulation of the rates of electrical utilities in all but two of the states, and of service in all but five of the states. The financial operations of such utilities are supervised and controlled in a large majority of the states. These principles are being rapidly extended over the few remaining states.

No one can survey the work of the state commissions and the instructive series of court decisions concerning their rulings as a whole without realizing that we are gradually developing a science of regulation and of understanding, on one hand, of the need of drawing the fine line between minimum rates to the people and, on the other hand, of such a reasonable profit to the industry as will stimulate its advancement. It is my belief from this investigation that the public service commissions with very little just criticism are proving themselves fully adequate to control the situation. The laws as written in the state statute books are sufficient to protect both the public and the industry, the two parties to the utility contract.

But the test of regulation does not lie in the statutes. To know whether regulation has really worked to public interest we must examine its actual results. We have now behind us a score of years of regulation and we can judge by real experience whether this method will protect public interest.

It seems to me that there are two final tests of this question. The first is: Is the service adequate and is the industry progressive in its provision for future need? The second is: Are the rates reasonable in themselves and are the profits taken by the industry upon the capital invested extortionate?

I need add nothing to what I have already stated as to the development of the industry to demonstrate that the advancement of the art and its progress in application are moving apace. In the national sense the industry is acquitting itself well in service. Its initiative in scientific investigation, in application of discovery, its extension of service, is of the highest order of American business. The service leads all others in the world and it improves every year.

As to the reasonableness of rates, it may be observed that the nation-wide average shows that rates are today slightly below prewar, and this despite an increase of 100 per cent in wages, together with increased cost of fuel and of many supplies. Power is one of the few commodities which the public obtains at prewar prices. While the price per kilowatt has shown a small decline since before the war, yet beyond this the technical improvement in lamps has resulted in a fourfold increase in the amount of light dispensed for the same money. Of perhaps broader significance in this test is the fact that the total interest and dividends paid by the industry in 1912 amounted to under 4 per cent on the estimated valuation of the industry; in 1917 it was under 5 per cent and in 1922 it was under 6 per cent and again about 6 per cent in 1924. It might be observed that the rate of taxation on private plants increased about 400 per cent, that is, from about 0.6 per cent on the estimated valuation in 1912 to 2 per cent in 1924.

It does seem to me that these facts demonstrate that in the nation-wide sense our state legislatures have been equal to their task of protecting the public and that the state commissions are doing their jobs well. And likewise, democracy is demonstrating its ability to retain mastership in its own house.

Federal Regulation

It has been proposed that as power districts may be no respecters of state lines, we must have federal regulation of power. I do not agree with the conclusion that federal regulation is necessary. I can see no reason for the imposition of a superior regulation, merely because Congress may have the power to exercise its authority under the commerce clause. The essence of regulation lies in a tight grip on the concern that actually deals with the consumer. There is the possibility that generating concerns may sell their power wholesale at the state line to distributing companies, thus attempting to make their wholesale prices exempt from the regulation of the consuming state. But that state still regulates the price and service of the distributing company. Most commissions exercise supervision of the contracts for purchase of power. The commissions are unlikely to blindly accept, as an item of cost, the amount paid to an external transmission company for its power, but rather they will examine the cost and reject it as a basic element if found unfair or excessive or collusive. I commend this view to the careful consideration of the state commissions. The utilities themselves would do well not to oppose it. It would create the only gap justifying federal intervention. For the rest, cooperation between commissions could settle the possible minor questions.

And there are the most weighty of reasons against federal regulation. Power is, by necessity, bound to be local in its districts—as to its service, its generation and distribution. It differs widely from the interstate implications of the railways where they are dependent not upon districts but upon whole groups of states. Local acquaintance, local valuation and public opinion can operate upon power to their fullest extent. Nothing will produce worse service than to attempt to transfer local problems to absentee solution at Washington. And if our democracy will stand at all it must stand upon the local responsibility. Nothing could be a more hideous extension of centralization in the federal government than to thus undermine the state utility commissions and state responsibilities.

New Problems in Public Relations

Central generation and interconnection do not in any way alter the essential character of regulation. There are, however, questions of public relationship which become of greater importance as a result of this transformation of industry, and I propose to review a few of them.

Valuations. The most difficult of all questions before the commissions has been the determination of the basis and method of valuation of the properties for rate-making purposes. There have been many theories and much discussion. But one element is common to all methods, and is the most important in the public interest; this is, that the rate of earning and consequent charge to consumers is based upon reasonable return on actual value. The commissions, broadly speaking, have disassociated capitalization, as shown by stocks and bonds, from the valuation on which rates are to be based. The consumer is thus free from the burden of overcapitalization. The commissions have reached realities in the matter, casting aside all arguments based on watered stock. And through their control of security issues, they are in a position to prevent overcapitalization in the operating companies.

In most communities basic valuations have already been determined. It is greatly in the public interest that valuations be completed and made universal. By prompt commission action now we can avoid the 40 years of delays and muddling we have gone through in the attempts to value the railways. And there is sound protection to the investor in this basis of rate making, for it holds capital issues to realities. It would be a further protection to the investor if all companies published to their stockholders the valuation of their property by the public commissions.

REGULATION OF MUNICIPALLY OWNED PLANTS

The municipally owned plants in the country comprise about 3½ per cent of our total generating capacity. In approximately half of the states, municipally owned plants are immune from state regulation of their rates and service. In many cases they neither maintain uniform accounting systems nor submit their accounts to state commissions.

It is vital to the local communities which have such plants, that they should be able to judge the competency of their managers and the relative advantages of private *versus* municipal operation by comparison of results. Beyond this, however, as municipal ownership is much recommended to the nation by its advocates, it is of the highest importance that the whole nation should be able to form unbiased judgment in the matter by the parallels of actual experience. Whether the cities will secure their power and light from the great interconnected systems of private enterprise at regulated rates and profits, or will undertake to secure it by municipal ownership, will be settled only by experiment, and the experiments are in progress. We make progress in democracy only by experiment. My point is not to argue the municipal ownership question, which is often a problem of local factors, but to emphasize the importance, from a national point of view, that the whole country should have available real knowledge of how these experiments result. Moreover, the best assurance to the citizen of those cities is the independent check on accounting service and finance by the state commissions.

FEDERAL POWER CONSTRUCTION

We shall sooner or later have difficult questions to solve in connection with the relationship of by-product power from federal construction of dams for flood control, reclamation and navigation such as Muscle Shoals, Colorado and St. Lawrence rivers, and we should solve them solely on engineering principles—not politics.

FREE FLOW OF POWER ACROSS STATE BOUNDARIES

The free flow of power across state boundaries has become a question of importance because of the embargoes upon the export of hydroelectric power imposed by some states. There may possibly be cases in which the export of power from a state, if fixed for all time, might stifle its own progress. They are very unlikely. The free flow of power through economic districts is as vital to efficient national development as is free interstate transportation in the case of the railroads. These embargoes are of doubtful constitutionality, but of more importance it may well be doubted whether such policies will work out in the end for the interest of the originating state itself.

Such actions are most unlikely to result in perpetuating more costly power to the originating state. The whole development of the industry indicates that the most economical use of water power must be in combination with large central steam plants, otherwise the secondary power can not be developed nor can the full load of primary power be availed of. Thus, a district pooling of production and distribution is necessary if hydro is to be cheaply developed and used. Beyond this, power will always retreat to the shortest transmission for equal rates and hydro states will get their power when they need it, because no one transmits power further than necessary to get the same returns.

Advancement of Central Generation

A vastly important matter from a public point of view is that central generation stations and district distribution systems shall be erected upon the most sound economic foundations for future service to the public. In this there should be immediate cooperation between the state utility commissions and the industry. The resources and the demands of every state and group of states should be subjected to critical study. The development of our streams on a designed program that will give the maximum ultimate power by equating the flow to the maximum degree is imperative. In skimming off the cream by haphazard development we may render full development an impossibility.

Again, location of central steam plants in their relation to fuel and water for cooling and to distance of transmission should be placed under analysis. I commend this to the existing public service commissions, the engineering profession, and to your association as an urgent opportunity for cooperation for our best development.

Obligations of the Industry

Public policy has not alone limited profits in the industry but it has given privileges and has, as a direct consequence of regulated rates, given protection to stable returns to the industry. There is, therefore, in this relationship a tangible obligation of rendering a wide-visioned service to the public in return. A great majority of the industry accept this with the full sense of its importance.

The first obligation of the industry is service and in the light of these great inventions service now requires the full equipment of the country with central generation and interconnection. It is one of the greatest obligations ever imposed upon a single industry. Nor would the country be best served by pellmell haphazard treatment of the question. The installation of these gigantic equipments for the least capital expenditure in such locations and in such fashions as will give the maximum efficiency not only today but in the long view is vital. As I have said, I believe the industries should cooperate with the public utility commissions to study the long view of state and regional development. It all involves almost infinitely painstaking technical studies and development of actual construction step by step.

Industry must now also assume the burden of the development of service to territories beyond the congested districts. Such service upon efficient and low rate basis will bring long view returns of the greatest value to the industry and the community. Your association has already taken steps in promoting electrification of our farms and rural communities. It is desirable that the operating companies should take note of this development in California which already exceeds any other place in the world in this respect.

One phase of the whole question of ownership and control is being worked out through your distribution of prior lien stocks to your employers and consumers. With the increase in stockholders of this industry from 600,000 persons to 2,500,000 persons in five years, you are creating real popular ownership. I am convinced that in the long run the industry should be localized by increased customer ownership, with full responsibility in the district of its operation. Power is a vital part of the community organism. The ultimate safety of the industry and the public lies in this direction.

In closing I should like to repeat a statement which I recently made, for it bears upon this industry. I said:

> Perhaps dimly, but no less certainly, there is looming up in the American industrial world a definitely new relationship in the whole setting of industry. The capital ownership of great service and production is rapidly being diffused among millions of individuals. The ownership is thereby being divorced from management. The managers of older and settled industry are today rising out of the skill of the industry itself. And they are gradually coming into a new vision of their relationships. Those relationships have a tripartite responsibility; to the consumer on the one hand, to the worker on the other, and a regard for capital only in the sense that it shall be assured security and thus secured on the lowest

terms in the market. Under this regime the savings we can make through application of invention, through increase in skill, through elimination of collective waste, are bound to be shared with the consumer to attract business, to be shared with labor to secure service and contentment, and to be decreasingly shared with capital, because capital comes cheaper with increasing security.

If we examine our utilities and many of our older and larger manufacturing concerns from this point of view, we shall find that an astonishing proportion of our national production and service is now operating in various degrees under this regime of a new conception of capital, management, labor and the consumer. Thirty years ago we should not have believed this possible. Nor are these tendencies based upon any abandonment of self-interest as a motive. They are based on just a little more intelligent self-interest, with perhaps a little larger proportion of that salt of altruism found in the impulse to personal accomplishment and in responsibility to widespread numbers—and to public opinion.

He would be a rash man who would state that we are finally entering the industrial millennium, but there is a great ray of hope that America is finding herself on the road to a solution of the greatest of all her problems; that is, a method by which social satisfaction is to be attained with the preservation of private industry, of initiative, and of full development of the individual.

The electrical industry, through their methods of organization, may be the bearers of a new gift to sorely tried men, greater even than the energy they supply.

FARM ELECTRIFICATION IN NEW YORK STATE[1]

OWEN D. YOUNG

Mr. Young, Chairman of the Boards of the General Electric Company and of the Radio Corporation of America, delivered this address before a meeting of representatives of farm, university, and electric public utility organizations under the auspices of The Empire State Gas and Electric Association, Apr. 6, 1925.

Mr. Chairman and Gentlemen: You have asked me to speak on the subject of supplying the farmers of the state of New York with electric service. I welcome the invitation, not only because of my great interest in the subject, but because I ought to have some qualification to speak on it. I was born on a New York State farm, in a remote agricultural district, fifteen miles from the railroad. I worked on that farm until I was twenty-one years old. Out of doors we had no power except man-power, and natural horse-power, and indoors nothing but the grinding drudgery imposed upon my mother for unconscionably long hours every day. There were no milking machines; there were no milk separators; there were no power churns; there were no power pumps; there were no silage cutters; there were no washing machines; there were no vacuum cleaners; there were no electric flatirons; there were no electric lights; there were no telephones; there were no automobiles; there were no radios. The weekly and semi-weekly newspapers were the communicators of intelligence. Muscles of human beings and of horses were the generators of power, and operated through the greater part of the year every day to the point of exhaustion. These are the recollections of my youth. For the last twenty-five years I have operated that same farm, and I do today.

Later, I became a practicing lawyer in Boston, and devoted the greater part of my time and study to the problems of electric light and power companies. This industry was just then emerging from its infant diseases, resulting from poor technical equipment, bad financing, and unsatisfactory franchises acquired by unwise methods. For fifteen years I devoted myself to the study of the light and power business, during which time it was establishing itself as a real instrument of public service. For the past twelve years I have been connected with a great electrical manufacturing company, and have had the opportunity to observe its field and study its problems. Consequently, Mr. Chairman, I think that I may say I am a farmer; that I am familiar with the light and power business; and that I have some knowledge of electrical manufacturing. The electrification of the farm requires the co-operative effort of all three—the farmer, the electric light and power company, and perhaps most of all, the electrical manufacturer. I know the difficulties of each. The problem is difficult, but it must be solved. Farms must be made attractive as a place to live, and profitable as a business. Their produce must be made as abundant and cheap as modern devices and inventive genius can make it, in order to guarantee our food supply. As a social problem, life on the farm, and particularly in the farm houses, must be relieved of its exhausting drudgery through the application of electric power, just as we have relieved its desolating lonesomeness by the telephone, the automobile, the moving picture, and most of all, by the radio.

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[1] By permission of the author.

The farm can be and is being made the best of all places in the world to live. The business of farming must be made to yield profits commensurate with other business. I welcome that Monday morning when the electrically-driven milking machine shall have milked the cows; the electrically-driven separator shall have produced the cream; the electrically-driven churn shall have made the butter. At the same time, in the house the electrically-driven washing machine shall be automatically doing its work while breakfast goes on and we shall have sunny, bright, and happy Mondays in place of the old blue ones. And they were blue, and rightly blue in the old days with the milk coming into the house from the barn; with the skimming to be done, and the pans and buckets to be washed; with the churn waiting attention; with the wash-boiler on the stove while the wash-tub and its back-breaking device, the wash-board, stood by; with the kitchen full of steam; the breakfast cooking in progress, and one pale, tired, and discouraged woman in the midst of this confusion. Hungry men were at the door anxious to get at the day's work. Blue were those Mondays indeed. Perhaps on these new and brighter Mondays, we might even picture the radio bringing in the jazz on Monday morning and the housewife taking a turn or two around the table just to celebrate her happiness in the new day.

"How to Electrify the Farm" can be solved only by answering four other questions:

1. What can the farmer do?
2. What can the power company do?
3. What can the manufacturer do?
4. What can the State do?

WHAT CAN THE FARMER DO?

First, let us see what the farmer can do! Above all, he must be interested in his business. He must be open-minded, and hungry to find new methods by which he may make his undertaking both more pleasant and profitable. Pride in the advancement of his business, and the initiative to advance, are essential. Leadership must come from the men who own and live on their farms and take pride in their business. I am happy to say that this class yet remains as the great backbone of America. Whether one speaks economically, socially, or politically, they are the anchorage of this country. The farmers should insist upon the study of electrification by their agricultural schools and colleges, by their farm organizations, and require a constant and unending publicity of the results of such studies through their farm journals. They should welcome study by the power companies, and the manufacturing companies, and should co-operate with them to work out practical plans to get effective results. In each community, they should endeavor to develop a universal sentiment in favor of power supply, and general agreement to take the service in order that rights of way may be economically obtained, and the cost of service distributed over the largest possible number of customers. Both the automobile and the radio are later developments than electric light and power. They have had wide sale among farmers. It is probably explained by the fact that these may be individually bought, whereas electric light service requires co-operative group action. The farmer is too much of an individualist to be a good co-operator. He must learn to co-operate if he is to get electric service. To sum up, I ask the farmer to show the same initiative in the development of his business that the manufacturer does. I ask him to be open-minded as to new methods and to show a readiness to abandon the old. I ask him to learn to co-operate with his neighbors for their mutual benefit, as well as to act individually on his own account. I ask him to assert both economic effort and his political influence to create such favorable conditions for the supply of electric service as to insure proper results.

The one point I want to make to the farmer is that the manufacturing companies may produce devices, the electric power companies may bring electricity to his door, but the question remains with the farmer whether he will put it to work. It is he, in the last analysis, who must say whether or not electricity is to be used in agriculture.

What Can the Power Company Do?

Second—What can the Power Company do? First of all, it can show such interest in the study of the needs of the farmer as a potential customer as it has heretofore done so effectively with reference to industrial and commercial customers. When the great hammers of a steel works needed power, the electric power man was there with his motor and his wire. When the coal mines were using mules to haul the coal to the surface, he was there with his electric locomotive, his elevator and his wire, and he put the poor mule out of business. When the textile and other similar mills were full of belts and shafting, impairing light, creating noise, and endangering life, he was there to relieve the situation with his individual motor and his wire. When the bake shop needed ovens, he was there with his heating devices and his wire. When the stores needed light, he was there with his highly developed specialized lamps and his wire, but when the cows were to be milked, when milk was to be separated, when the cream was to be churned, when the curd was to be cut, when silos were to be filled, when grinding machines were to be run, unfortunately the electric power company was not there with his motor and his wire. He has been largely interested in serving these other larger consumers in more concentrated areas. I am not criticizing the power companies for what they have failed to do. I am commending their spirit of today. Their achievement in this country as compared with the development in any other is one of the outstanding testimonials to the energy and ability of the men who have directed this great industry. All I wish to say to them is that having made such progress in these other fields, and having from necessity so long neglected the agricultural need, the time has come when they should now give special attention and study to agricultural problems and to ways and means of furnishing agricultural service. They should create agricultural departments with men who not only know the electrical business, but who know the farming business. It will not do for the electric power companies to send men to the farms who do not know on which side of the stanchions to install a milking machine. One reason why the farmer has not been open-minded is because the people who have been trying to sell him electric service have really known nothing about his needs.

Just as the electric light and power companies now have Industrial Departments, they should, in the future, have Agricultural Departments. These departments should be in the hands of men familiar, not only with electricity, but with farming. They should be in close touch with the agricultural schools and colleges. They should be working through co-operative committees, such as The Joint National Committee on the Relation of Electricity to Agriculture and The New York Rural Lines Conference Committee. This New York committee is composed of representatives from the State College of Agriculture at Cornell, the New York Farm Bureau, the State Grange, the Home Bureau, and the Empire State Gas and Electric Association. In my judgment, the power companies and the manufacturing companies should aid the work of this committee, not only with skilled men, but by providing it with such funds as may be necessary to enable it to do its job.

The Increasing Obligations of Power Companies

Now, again let me say a word about what I conceive to be the increasing obligation of power companies to supply service to the smaller communities and the agricultural districts. Twenty-five years ago the light and power companies did a local business in each municipality. A generating station suited to the size of the community in which the franchise was granted, and a distributing system adequate to cover its needs, was a power company. Within that community, it was their privilege and their obligation to supply service to its citizens. Each individual service might not be wholly profitable, but if the earnings from the community as a whole showed a fair return on the capital invested there, the power company was satisfied. Today, a change has occurred in that business. The art has developed, and the industry has extended with the art. It has been found that it is in the interests of the industry as well as of the community to have great central power stations, favorably located, supplying a large territorial district comprised of many communities, in place of the small individual plants for each community. The cost of power supply is reduced through these larger and more economic generating units. It has been found of advantage to the power companies to diversify the load by the different uses to which power is put in different communities at different times of the day. This, too, is of advantage to the power companies in that it makes their investment more productive. When, however, great districts are served by a single power company, when great power transmission lines are run through rural communities in order to connect one city with another, when the farms and small villages find that they can not tap these lines for service which run directly by their door, they begin to ask, and, in my judgment, properly ask, why if they are a part of this great integrated power district, they should not have their service too. In other words, I think the power companies must remember that when they extend their operations over wider areas, and put their network of power lines over large districts, they take on an obligation to serve the people of the district in which they have the privilege of operating. This does not mean that they can run a service line to the last farm, or even the last village in that district, but it does mean that they must view their obligation as they have always done, as one having two aspects, one economic, and the other social. The company must neither ride the economic hobby to the point where its service is not generally available in the community, nor, on the other hand, can it ride the social hobby as some loud-speaking and visionary persons outside of the industry urge, to the point of financial bankruptcy. Wise human judgment must be exercised in the service of the citizens of the district in which the company operates, and I am happy to say that, for the most part, the power companies have exercised such judgment, and that accounts largely for the high favor in which they are held and the stability of their business and their securities. I have never contended that a small plant in a small village, whose duty it was to supply the village, had any obligation to run a line 15 miles in the country to supply the farmers along that line. What I do say is that if a company sees fit to connect up 40 or 50 or 100 such cities and villages in its own interest, then its obligation, subject to the economic limitations which I have mentioned earlier, is to supply that whole district electrically, not the cities alone, but the villages and agricultural areas as well within the field of their operations.

The fundamental limitation under which the power company can supply these services to the whole community is that the rates should be such that the earnings from the community as a whole will yield a fair return on the investment of the power company as a whole. Therefore, in my judgment, rates should be studied from this point of view. The Public Service Commissions should co-operate, and even insist, upon their establishment. Rates so far as possible should be simplified. The slide rule after all is not as unerring as the engineer sometimes thinks, especially when we have to apply it to the social needs of a community in which human understanding and human sympathies must be mingled with economics and mathematics in order to get a practical result.

So I ask of the power company which extends its lines over great areas and connects up many cities and towns to regard the farmer within that territory as one to whom it owes an obligation. If the power company will recognize such obligation, then I ask them to study the farmers' needs and within every reasonable economic limitation to supply the service.

Now as to the manufacturer. He, too, is subject to the indictment of want of interest. He has sought to supply electricity to everything in the world except the farm. He has spent enormous sums on research and engineering to find out how to make industry more productive and economical. He has been unremitting in his toil to apply electricity to transportation, both on sea and on land. He has been constant and devoted in his attention to every kind of device to make the turnover and marketing of goods quicker and simpler and more profitable. I say the manufacturer has not yet met, by sufficient expenditure of energy or money, the problem of the farmer. Without electrical machinery adapted to farm use, the farmer cannot extend the use of electricity to his profit. Unless he can extend to his profit, he will not use it, and unless he becomes a substantial consumer of power, it will be economically impossible for the power companies to supply the service. Therefore, the manufacturing companies must endeavor to develop these agricultural applications. The farmer must be open-minded enough to use them, and if these two things are done, the power companies, I am sure, can and will provide the lines. It is the manufacturer's job and his responsibility, and, so far as I am able to speak for the great concern with which I am proud to be connected, I pledge you its co-operation and its effort in trying to answer the question before us.

The State—What Can It Do?

And now as to the State. What can it do? This is one field, Mr. Chairman, in which I have not had experience. Let me be very specific now, and address myself to the State of New York. Nowhere else in the world are there such resources of water power contiguous to so great a market. The God-given storage of the Great Lakes and the drainage area of half a continent is collecting water and equalizing its flow over the falls of Niagara and down the rapids of the St. Lawrence, all for the economic benefit of the State of New York. All we have to do is to take advantage of it. Nature has done her share. Relatively small developments have been made. Millions of horse power run to waste every year. This waste takes place, Mr. Chairman, not because the electrical art and industry can not harness these great powers; not because they are too timid to try. The record is that they have sought and are seeking the opportunity to develop these powers but as yet no adequate permits have been given. In addition to the great powers on the boundary streams, which are capable of carrying base load operations of the State, we have smaller powers in the Adirondacks, on the Genesee, and on the Delaware, which, with adequate storage, could be developed to carry the peak loads which occur at different hours during the day. These powers can be laid down on great busbars throughout the State and made available everywhere within the State. What would it mean to the Mohawk Valley if a million horse power were to be laid down along its six tracks of railroad and the barge canal? Industries which have been seeking the cheap coal of Pennsylvania and the waterway of the lower Delaware would find their way into the district in which I now stand. The increasing population of this district would enlarge the market for all the farms in this State. They would become more valuable instead of becoming less valuable. Our industries would be largely increased instead of standing more or less stationary. Still, the power which is necessary to do this job runs to waste. And why? It is because the people of the State of New York have permitted this great economic question to become a political football. One would think that all of the people of the State would demand such a simple and desirable development. When gold is discovered in Alaska, the front pages of the newspapers are filled, and thousands of men from all countries rush to dig it out and increase their wealth. Yet here, Mr. Chairman, we let gross values larger than all the gold in the world run to waste. These we could conserve for the benefit of the people of the State. For the farmers in better markets; for the workmen in better wages; for the industries in larger and more adequate power; for the railroads in better transportation.

SLOGANS WHICH MISLEAD

Why is it? What are the slogans which mislead us? One is that the grasping power company is trying to destroy the scenic beauty of Niagara Falls, and yet I think I am right in saying the latest studies show that in view of the erosion, scientific handling of the Falls must be had in order to preserve their beauty, and that it may be had consistent with great additional power development there.

Next time the slogan is the destruction of the Adirondack forest—the playground for the people. I think I know every foot of the Adirondacks. I yield to no one in my love for them and in my desire to preserve them. I think I know the needs of the power companies. I would not impair the beauty of that great playground to develop power, nor would I permit any people having special interests, whether they be political or otherwise, to prevent the adequate use of these powers for the benefit of all the people of the State under a visionary and unfounded cry of forest destruction. Are we so incompetent in this State, Mr. Chairman, that we can not develop plans to conserve and use the waters of that great watershed for the benefit of all the people of the State without destroying or impairing in the least the beauty and the development of that great forest? Personally, I am sure we can.

And finally the most effective slogan of all—the power trust is trying to steal these natural resources for its own benefit and take them away from the people. Mr. Chairman, if there be a power trust, which I deny, most people would admit that I am competent to speak about it. It is evident that nobody can make a dollar out of these falling waters except by harnessing them for the service of the community. No capitalization of the developing company can be had and no rates can be charged except such as are approved by the Public Service Commission of the State. What is there to this charge of stealing the water powers if they can only be developed under State control, and if they can only make their money by rates approved by the State, and if their income can only arise from putting the power which is now going to waste to the service of the people?

For twenty-five years, Mr. Chairman, we have permitted these great economic resources of the State of New York to run to waste while the politicians have played football with this subject. I propose that the people of the State demand now that this economic proposition be dealt with on an economic and sensible basis; that the powers be made available, and that we substitute economic progress for political horse play.

As to St. Lawrence powers, I am happy to say that the problem is being studied by an international commission under the leadership of the Secretary of Commerce of the United States. No one is more competent to deal with that great question in the interest of all the people. The State of New York, however, is doing nothing to aid the

Federal Government in trying to make those great powers available for its own people.

Now, Mr. Chairman, I have not wandered so far away from the electrification of the farm, because the development of these great water powers is one of the ways in which not only industry may be enlarged, but the welfare of the farms may also be advanced. When we substitute the power of falling water for coal which we do not produce, and the transportation of which clogs our railroads, then we will make a great step forward in all electrification, and not the least, the electrification of the farm.

I have had some experience, both in this country and abroad, in seeing politicians attempt to handle economic problems. I have seen them fail. If the people of this state will demand a non-political and impartial handling of the question of water power development, and the adequate distribution of that power without discrimination throughout the state, then I am sure that our industries will grow, our barge canal will have its traffic, our farms will be in a position to demand and receive electric service, and their productiveness and their value will be increased.

FEDERAL OWNERSHIP AND OPERATION OF THE RAILROADS[1]

FREDERICK H. ECKER

Mr. Ecker, since 1929 President of the Metropolitan Life Insurance Company, delivered this address at the second midyear meeting of the Chamber of Commerce of the United States, Eastern Division, Wastington, D. C., Oct. 24, 1924.

May I open this discussion with a quotation?

> State railroad ownership too often means, not the ownership of the State as a whole, but of a small body of men who happen to hold political power at the time; it is neither more nor less than the substitution of a ring of political managers for a ring of railroad managers. Its practical success varies according to the condition of the Civil Service. But the Government is, as a rule, less responsible than a private corporation, instead of more so. If there is any lesson which is clearly taught by the history of railroad management from the beginning until now, it is that publicity and responsibility are more important than any set of laws or regulations.

This is a statement by Professor Hadley of Yale, of his views on the subject we are now discussing, but remarkably significant is the fact that it bears date, not in the year 1924, but in the year 1887. Nevertheless, it would be difficult to-day to summarize the experience and the conclusions of the intervening years more concisely and to the point than did that eminent economist four decades ago.

The advisability or inadvisability of an undertaking, on the part of the United States, to take over and own and operate our national transportation system, may be considered in the light of the experience of other countries in similar enterprises, giving such weight to such experience as the similarity of their situation with ours will warrant. Then, too, we may turn for further light from experience to the experiments made by the United States or by its municipalities in the realm of public ownership of public utilities. And last, but not least, we may attempt to apply the acid test of common sense to the proposal.

The railroad, as a practicable means of transportation, had its beginnings in the fourth decade of the preceding century, the first tracks coming into use almost simultaneously in the United States and in England, in 1830. Within five years thereafter Government ownership of railroads was undertaken in Belgium, to be followed by Germany, by Switzerland, by Italy, by France, by Russia and India and Australasia, by Austria and Holland, while all the time the ownership of the railroads in the United States and in the United Kingdom has remained in private hands. For ninety years the Anglo-Saxon countries have prospered under a transportation system privately owned and operated. During that period, the continental nations have practically all tried the experiment of Government ownership. Assuming for the moment what would be vehemently denied in all quarters, that the political and social ideals and practices of this country and of England are so similar to those of the continental nations as to warrant the conclusion that what is a success on the continent would be a success in England and America, let us see if, indeed, Government ownership can be said to have been a success in those countries.

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[1] By permission of the author.

I cannot, within the brief limits of this paper, undertake to analyze the transportation history of the European countries. It must suffice to point out very briefly the results of some of those experiments.

Germany's Experience

Every one concedes, I believe, that if there has been an outstanding example of the success of a Government ownership project, it was in Germany. And yet we are told that the rates in Prussia were high, notwithstanding the fact that the railroads hardly paid any taxes either Federal, State or local. It is probably true that in Germany, at least, the Government-owned railway was, before the war, self-supporting, so that the taxpayers did not have to make up operating deficits, directly or indirectly. But wherein is the advantage, if the Government prescribes rates materially higher than those where the railroads are privately owned? It is of passing interest that in 1920 the deficit reported amounted to thirteen billion marks. Furthermore, Germany recently has voted to turn the roads over to private management to insure the earning of reparation payments.

In Belgium, where the Government constructed and operated the first railroad ninety years ago, we are told that freight rates are high, that the number of employees per mile is one-half again as many as on the neighboring privately owned French railway and service is in no respect superior.

RESULTS IN ITALY UNSATISFACTORY

Italy seems to have tried all the permutations and combinations of public ownership with and without private operation, with quite uniformly unsatisfactory results. In rate of increase in employees per mile of railway, in rate of increase in their compensation, in increase in operating ratio, the Italian National Railways offer little by way of inducement to the adoption of a similar program in the much more highly developed transportation field of the United States. Deficits of over one billion lire are reported for 1921, and the Italian Government, too, now is seeking a way to return the roads to private ownership and operation.

In France, one of the seven great systems, the Western, was taken over for operation by the Government in 1909. At the end of the next five years it appeared that while gross revenue had increased 31 per cent., the operating expenses had increased 100 per cent. Under private ownership, operating costs were 67 per cent. of gross revenue.

Under Government ownership, operating costs had increased in three years to 89 per cent. of gross revenue. In the same period, the operating ratio of the privately owned systems of France increased only 8 per cent. Nor was the increased cost of publicly-owned railways reflected in improvements or service. On the contrary, investigators have demonstrated that the additional costs went into excessive wages for all employees, whose numbers had also become excessive through employment of superfluous employees demanded by political influence. In 1923, the state-owned railway lost 145 million francs while the six private systems in the same years reported a net income of 732 million francs.

STRIKES NOT PREVENTED

Switzerland, Russia, Austria, have each furnished convincing evidence to the same effect, which need hardly be presented here. India and Australia are equally poor examples from which to argue for success in Government ownership. On the political side of the question, it is of more than passing interest to note that in Victoria a strike of the Government employees actually caused the enactment of a statute depriving all railway employees of their local vote, and setting them into a separate class for voting purposes, electing their own special representatives for the Legislature.

So much, in a most general way, as to Government ownership of railways in foreign countries. Limits of space forbid the presentation of precise figures in each case, particularly figures by way of comparison with the privately owned systems in the United States and England. No one who has any familiarity with the facilities afforded by the Government-owned railways of continental Europe will be likely to desire similar conditions in the United States even if they could be secured economically. But all experience points to the inevitable conclusion that public ownership and operation spell higher operating charges, superfluous employees with a consequent tendency to inadequate work on the part of each, insufficient maintenance, improvement and extensions and generally inferior service to the public.

England offers another comparison of value. While the railroads are privately owned and operated, certain public utilities are owned and operated by the Government. In the case of the telegraphs, the statement was made in 1917 that the operation had resulted in a loss of more than $4,866,500 per annum during the preceding ten years. The Post Office, operating the telephones, is said to incur a substantial annual deficit while furnishing a service which is an abomination to persons familiar with the private operation of telephones in the United States. The furnishing of electricity for light and power in England is usually subject to the same criticisms, inferior service as related to high cost.

Canadian National Railways Operate at a Loss

Before examining the status of municipal enterprises in the United States, let us turn to one more instance, the case of the railroads owned and operated by our neighbor on the north, the Dominion of Canada. In the first place, the Government has been operating the Intercolonial Railway, from Montreal to the Atlantic ports, for forty years. It has not earned its expenses, notwithstanding that certain renewals, properly chargeable to operating expenses, were met by new issue of capital. Then, again, the Government was obliged to take over the Canadian Northern and Grand Trunk systems which, in spite of statements recently made to the contrary, are known to have suffered deficits which were only to be made up by resort to funds raised from the taxpayers of the Dominion. The Canadian National Railways were operated at a loss of ten million dollars in the year 1922. To point the moral, it is only necessary to look at the record of the privately owned Canadian Pacific, operating from coast to coast with satisfaction to the public and to its stockholders.

While we in the United States have had little experience with nationally owned or operated transportation utilities, we have had enough to give us pause before launching upon a scheme, the magnitude of which, in money and debt, in property and personnel, staggers the imagination. We had, to be sure, the Government operation during the late war. The unanimity with which every one gave patriotic support to all war enterprises lent something, perhaps, toward such success as attended the efforts of the Government. But, in spite of opportunities which are denied to the private carriers, the Government was not only unable to accomplish the economies which attend private operation, but in very, very many ways was compelled to yield to demands which greatly increased maintenance and operating costs. And then, at the first opportunity, the Government turned the railroads back to their owners, with obligations for depreciation, deferred maintenance and what-not amounting to $1,600,000,000. Such obligations are to be met only by resort to the Public Treasury whose funds are made sufficient only by the taxes which the Government collects, directly and indirectly, from you and from me.

ALASKAN RAILROAD SHOWS DEFICIT

We have another nationally-conducted railroad enterprise—The Alaskan Railroad. Suffice it to say that, according to a statement of its business, it had operating expenses for the fiscal years 1916–1921 of $6,389,131.27, to be met by operating revenues of $1,519,953.99, leaving a deficit to be met by the taxpayers, not of Alaska, but of the United States, in the sum of $4,869,177.28. For the succeeding three years, the story is the same: in 1922, a deficit of $696,097.36; in 1923, a deficit of $1,503,554, and in 1924, a deficit of $1,771,062.76.

Equally unpromising is the situation as respects the Inland and Coastwise Waterways Service and the Emergency Fleet Corporation. The former is operated at a deficit, supplied of course by the taxpayers, and the Emergency Fleet Corporation, while naturally to be viewed as a war enterprise, nevertheless offers one more example of the heavy toll which Government operation demands at the hands of the citizen.

On a smaller scale, the same conclusion is to be drawn from the experience of our municipalities in the operation of gas and electric properties. Of the cities and villages in the United States which have, at one time or another, undertaken to own and operate such utilities, we are told that nearly 700 have, after a trial of such operation, retired from the field and have invited private concerns to do for the public what the public has demonstrated that it was unable to do satisfactorily for itself.

Municipal Ferries Not Self-supporting

In New York City the figures show a yearly operating loss of $1,500,000 on the municipal ferries. A recent study of this problem, made by the Merchants' Association of New York, gives a comparison between the municipal ferries and the privately managed railroad ferries. Conditions would seem to be similar and yet, according to this study, the municipal ferries cost the city $11.98 per nautical mile operated, as against $7.15 in the case of the railroad ferries. It is of such stuff that municipal ownership deficits are made.

Just one more concrete illustration. According to a recent statement in the public press, the municipally-operated enterprise known as the Williamsburg Bridge shuttle line managed to convert a profit of $60,000 a year under private ownership into an operating loss of $40,000 a year under public operation. The officially alleged cause, pilfering by operatives, may strike us as far-fetched, but the indisputable fact of loss adds but another to the long list of failures in public ownership and operation.

Many more specifications in cases which have been superficially mentioned could well be given if time permitted. In no instance, it is confidently asserted, can it be successfully claimed that Government ownership and operation of railroad systems can compare in the factors of efficiency plus cost of service to the public with the privately owned railroads of the United States.

Politics a Fundamental Objection

A fundamental objection to Federal ownership and operation of railways is politics. The American people take part in their government and each voter is accustomed to expect that his own personal interests shall have the attention of his representative at Washington. The National Government is now overwhelmed with activities which it has assumed, very largely and very properly in the field of government rather than business, but it has undertaken nothing so tremendous as would be its problem, should it acquire and operate the railroads.

It is estimated that our American utilities employ two million, seven hundred thousand people, quite largely in connection with the railroads. Within the privately owned and operated systems where they are now employed, it is possible, even under present conditions, to see to it that work performed bears a reasonable relation to compensation paid. It is possible to see to it that the service is not over-manned. No such insistence on a dollar's worth of work for a dollar in the pay envelope can long be had when the employee is a constituent of an office-holding or office-seeking individual who purports to function in the management or supervision of the nationally-owned railway system. As Mr. Hoover has recently so well said: "The rightful interest of this group is in higher pay, constantly better conditions of service and better standards of living. The rightful public interest will be to hold down rates and taxes. These interests will clash, and their clash must fight itself out, not on grounds of economic bargaining between labor and employer, but in the political arena."

Government Is Wasteful Operation

With the greatest charity in our minds for the troubles which beset our public officials, we must nevertheless admit that government itself is the most wasteful operation within our borders. It was Senator Aldrich, than whom there was no man more familiar with national finance, who said, some fifteen years ago, that if he could be permitted to run the National Government as he would a private business, he could save it $300,000,000 a year, and that, at a time when our finances were counted in millions and not in billions as they are to-day. And then, too, we hear constantly of the millions to be saved by the use of the National Budget. This means nothing more nor less than an assertion that the Government now wastes millions, in the operation of its own affairs, which might be saved by the adoption of the principles under which any private business is run. Can it be that we would be willing to turn over the gigantic transportation plant of the country to the management and operation of our Governmental institution which, in the best of hands and with the best of motives, is conceded on all sides to need for its strictly governmental functions the application of ordinary business principles of management?

Many factors which make for success in the case of the privately owned and operated railways would be lacking if they were to be run by the Government. These things may be largely psychological, but it is undeniable that they would exert the same unfortunate influence here as they have in other countries.

It is simply human nature, for example, that public employees, as a general rule, do not render that quality of interested and enthusiastic service which is to be found in private employment. There is a sort of dead hand on the public service. Seldom can a man feel that loyal, enterprising service in a lowly position will be recognized by marked advancement. And yet in the private service, the men at the top come up from the bottom. In the public service, the man at the bottom, and the men most of the way up, know that the man at the top is going to be the man who is a success at the polling place. He knows that his own advancement must be limited both in position and in salary, and there is no help for it. It is a penalty we have to pay for the privilege of governing ourselves. Government service deadens initiative and initiative is indispensable to the successful operation of any business enterprise, of which no better proof exists than the advancement in the art of railroading in this country under private control and operation as compared with that in other countries under Government operation.

Then, too, there is another political aspect of the proposal. All physical property depreciates, railroad properties among the rest. Replacements become necessary. Additions and betterments must be made. They all require money, and the private concern can always get it when the proposal is sound. But what of the Government-owned railroads? They—that is, those who are in charge—would have to go to the Congress and compete in the annual appropriation bill scramble, with the proposed Post Office Building in some small town, the proposed dredging of some small creek, the proposed harbor improvement in some inconsequential locality and log-rolling would begin. In private business, log-rolling is unnecessary. In public business it is inevitable and the transportation structure of the country would be the sufferer.

A Confusion of Blocs

Lately, we have come to hear much from the seat of Government about blocs. Farmer blocs, Labor blocs, and what-not have established themselves in the Congress. The imagination can hardly conceive what confusion there would be if blocs of shippers and of employees should come to grips in Congress. Either the one or the other would have to give way, eventually, and in either case, to the detriment of sound transportation policy. With the railroads in private hands under sound governmental supervision, a proper balance between the relative rights and duties of shippers and employees can be maintained.

As a political question—perhaps, some day a major political issue—the result of the strife between shippers and employees, no matter which prevailed, would be disastrous to the transportation machine. The consequences might be appalling, seriously affecting all business of the nation and imperilling the health and comfort of all the people who must depend upon the railroads to keep them supplied with daily necessities.

Then, too, Government in business spells stagnation. Witness the transportation problem in the City of New York. The facilities there are years behind the necessary requirements, due entirely to that inability to reach a definite conclusion which is inherent in the conduct of the affairs of the public. Private enterprise and initiative produce results, the supply keeps pace with the demand, but no optimist can seriously maintain that, in the hands of the Government, the necessary improvements and betterments in the railway service would ever meet actual requirements, let alone those essential developments of fields which are, for the moment, unpromising.

Government Would Lose Taxes

Another immediate and substantial loss to the country would present itself. It is said that the utilities of the country pay, in taxes, $600,000,000 annually. No small proportion of this is paid by the railroads. The railroads are able to render the service they now perform under private management, at a cost to the public which permits the railroads to pay back to the public the vast amount of taxes levied annually. In public operation, assuming the Government could otherwise render equivalent service at the same gross cost, which is unbelievable, the cost to the shipper would have to be increased in an amount sufficient to equal the amount of the present return to the public by way of taxes, no inconsiderable undertaking in itself, or, in the alternative, the equivalent amount would have to be obtained, in some way, from the pockets of the taxpayers for the support of so much of the Government machine as is now supported by the taxes collected from the railroads.

The initial cost of the acquisition of the railways of the country, the inevitable increase in operating expense, the loss of the annual taxes now paid by the railroads to the Government, the fastening on the Government of the greatest army of small jobholders in the history of the world, all these factors admonish us that only the most convincing proof of compensatory advantage could justify the experiment. And where lies the advantage? Could we expect a better service? No one will seriously make such an assertion. Can we expect lower rates for shippers and passengers? The experience of all Government projects proves to the contrary. Can we expect a profit from the operation which will go to reduce the cost of our Government? Nothing in the history of the last ninety years warrants such expectation.

Disadvantages Summarized

On the contrary, it is the confident judgment of responsible thinkers familiar with this problem that the only result of such a change in the United States, if it could be practically effected at all, would be, first, a perfectly stupendous national debt to be constantly augmented by billions of dollars annually for capital requirements for new equipment, additions and betterments and corresponding interest charge; second, poorer service for the same or higher transportation rates; third, a veritable army of public employees always knocking at the door of the public treasury for greater compensation and collectively performing less service for the compensation actually paid; and, finally, among other things, a certain deficit, the amount of which no one would dare predict, but the source of the payment of which any child could predict—the pocket of every citizen.

This idea that the Government should operate any business, whether big or little, arises most naturally in the minds of those who discover or profess to discover defects in private management. It sounds alluring to maintain that the people should manage their own business, including in the term "their own business," business impressed with a distinct public interest, such as the railroads.

The concept of Governmental interference for what was believed to be the common good is not new. I was much interested recently, to have my attention called to the fact that, back in the days of the Roman Empire, one Diocletian, in an attempt to reduce the high cost of living, undertook a wholesale enterprise of price fixing and control. Everything used, worn or eaten by the Romans was to have its price under his regulations. One schedule related to transportation. It was decreed that the charge for transporting one person one mile was to be nine-tenths of a cent (the Roman measures having been converted into our own). Rent for wagon was to be five cents per mile. Freight charges for wagon, containing up to 1,200 pounds, eight and seven-tenths cents per mile, etc. You will observe that, centuries before any of our present day statesmen were born, the transportation problem was the subject of political and governmental attention.

Theory Not Proved Practicable

From that day to this, many Governments have undertaken the excursion into management of private enterprises, but nowhere, certainly not in democratic forms of government, have these experiments demonstrated the practicability of this theory.

It is true that in the earlier history of the transportation business of this country certain excesses and improper practices occurred, but the remedy did not lie and will not lie in the direction of public ownership and operation.

Whatever the excesses which may have prevailed in the past, the present rigid supervisory powers of Federal and State bodies make it perfectly certain that the railroads, under private operation, must give all—and, perhaps, more than all—the service to which the public is entitled, for a charge, to the whole national railway structure, at little more than cost. Surely, nothing is to be gained, and much is to be lost, by dismissing the private companies as the servants of the public for the dubious privilege of running the railroads ourselves, as a governmental function, with all the expense and travail which any governmental function imports.

REGULATION AND TAXATION OF MOTOR VEHICLES[1]

RALPH BUDD

Mr. Budd, President of the Great Northern Railway Company, delivered this address before the Transportation Club of Toronto, Mar. 21, 1929.

Mr. Chairman, Members of the Transportation Club, and Guests: I have been requested to discuss the subject of bus operation in the United States and its effect upon the railways. It is an appropriate subject because of the great part which the motor car has had in the evolution of overland transportation everywhere. In this discussion I shall endeavor to consider facts as I see them, and to indicate future probabilities based upon these facts. I shall endeavor to present the subject entirely without bias for or against either railway or highway transportation.

Just at the close of the first hundred years of railroad history a tremendous reversion to highway travel has, except for the railway itself, constituted the most important influence of the century, affecting the everyday life of all the people both in their social and business activities. This outstanding tendency has been partly the cause and partly the consequence of better roads in conjunction with the marvelous improvement of the motor vehicle.

A hundred years ago by far the greater proportion of traveling on this continent was done on the highways, and so it is to-day. During seventy-five or eighty of the intervening hundred years, however, the railways carried much more travel than the highways. Now the 22,000,000 automobiles operating in the United States handle 90 per cent of the total travel by railway and highway, the railway trains and buses together handling the other 10 per cent.

Automobile Ownership Increasing

As to the extent of automobile ownership, there appears to be no limit except the purchasing power of the individual, and, with that constantly increasing and the price of automobiles decreasing, there are definite reasons for believing that the total number of automobiles in use will increase greatly above the present large figure. Common carrier buses on the highways handle at present about one third as much passenger traffic as the railways, or about 3 per cent of the entire travel of the United States, outside of that by street railway and subway.

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[1] By permission of the author.

It is probably because of the evident futility of doing anything about the growing use of the private automobile that practically every discussion concerning the loss of railway passenger business turns to the inroads made on that business by the bus. While buses carry only 3 per cent of the travel, and automobiles 90 per cent, talk about the effect upon the railways of these two forms of travel is just about reversed in percentage, at least nine tenths of such discussion being about bus competition. Certain outstanding reasons are responsible for the rapid increase in travel by bus, but they can be summed up by saying that in many respects and under many circumstances the advantages of traveling by bus approach reasonably near to those of the private automobile. The latter, that is, traveling by automobile, of course, comes more nearly being the ideal way to go quickly from one place to another where distance is not too long, than any form of transportation ever enjoyed in the world, provided cost is not an important element to be considered.

In many instances the bus affords practically all of the convenience of the private automobile, and avoids the delay and embarrassment of trying to find parking space in the modern city. Also, in many instances trips can be made by bus cheaper and quicker than by railway train. On account of these advantages, the number of buses in the United States has increased until now there are 92,000 of them. About half of these are common carrier buses; that is, they take any and every passenger offered; while the other half are non-common carrier, mostly school and hotel buses.

Automobile and bus travel has had the effect of reducing the railway passenger revenues of the country by more than one million dollars a day. The actual passenger earnings of the railways of the United States in 1928 were three hundred and eighty-seven million dollars less than in 1920, notwithstanding the fact that the population had increased during those years by about 15 per cent. Anyone who has followed the growth and progress of public service corporations must realize that the idea underlying their operation is the greatest service to the public at the lowest cost consistent with continued good service, and when there is so general a shift as that of passenger travel from railways to highways it is needless to debate whether there are or are not advantages in the mode of travel that has become popular. The public has reached its own decision, which, after all, is the last word in such matters, and the only argument that will avail anything on the part of competitors is something in the form of better service. The real question for consideration is: What of the future of common carrier operations on the highways? It depends mostly upon the public policy of regulation and taxation finally adopted towards the motor vehicle. In approaching this question we must, of course, keep in mind that legislative, regulatory, and taxing bodies properly should consider only the public interest in making and administering the laws covering public service corporations.

Regulation

It is an accepted principle that the public on the whole is better served by governmental regulation of railroads, street cars, gas plants, electric plants, telephones, etc., than by leaving them unregulated. The necessity for regulation of common carrier traffic on the highways is generally admitted, and out of 48 states in the Union 40 or more of them have state regulation which in most instances is quite complete. The regulatory power in almost all states is placed in public service boards, commonly referred to as railroad commissions or public utility commissions. These same bodies regulate the railroads and other public service corporations. There is, however, no regulation of interstate highway traffic, but the necessity, or at least the desirability of such regulation, is well recognized by practically every one who has given thought to the subject. The Congress at its last three sessions has failed to enact any laws governing interstate operation of vehicles on the highways, although the subject was before all of those sessions. This failure seems to have been due to the fact that the four groups who represent the various parties at interest have not been able to agree on the provisions which should be embodied in such a law, although all of them agree that such a law should be enacted. The four groups referred to are: the railroad and public utility commissions of the various states, representing the public; the steam and electric railways; the operators of common carrier buses; and the automobile industry generally, which is represented by the manufacturers.

Interstate Commerce Commission's Recommendation

Two important subjects of controversy concerning the proposed legislation have been: (1) whether the Interstate Commerce Commission should adopt towards the bus industry the same policy that has been prescribed for railways and waterways, whose commerce it regulates; and (2) the manner in which the Interstate Commerce Commission and various state commissions shall divide or share their jurisdiction. The Interstate Commerce Commission in its procedure is a creature of Congress, and in this connection it is important to note that the Transportation Act, 1920, contains the following language:

> It is hereby declared to be the policy of Congress to promote, encourage, and develop water transportation, service, and facilities in connection with the commerce of the United States, and to foster and preserve in full vigor both rail and water transportation.

This short clause in the Transportation Act is, in the last analysis, the rock on which Federal legislation for control of buses in interstate traffic has split.

The Interstate Commerce Commission early in 1928 made a report based on extensive investigation of highway traffic in which it recommended Federal legislation placing such interstate traffic under the jurisdiction of the Interstate Commerce Commission. The report contains the following recommendation:

> Public policy demands the fostering and preserving in full vigor motor vehicle transportation as well as rail and water transportation. Section 500 of Transportation Act, 1920, should be amended to include motor vehicle transportation in the declaration of policy there made.

Apparently the thought behind the report was that in accepting regulation by the Interstate Commerce Commission, vehicles operating on the highways should also have the benefit of the same affirmative policy on the part of the Interstate Commerce Commission as the railways and the waterways have.

Bus operators, but more particularly the representatives of the automobile industry as a whole, have felt that without full equality in the declared policy of regulation the industry cannot grow and reach the high state of development of which it is capable. The representatives of the steam railway group have not been willing to accept the recommendation of the Interstate Commerce Commission with respect of this declaration of policy. Not all railway executives agree with the position just stated, and some think that the recommendation of the Interstate Commerce Commission is reasonable and proper. In my opinion, the railways, like all other public utilities, must rely for their continued success and prosperity upon the advantages of the particular service they render, and I regard an attempt to stifle and hinder the growth and development of a competitor by restrictive legislation or excessive taxation as unwise.

I favor Federal legislation which will place the common carrier users of highways under the regulation of state authorities, with the requirement that certificates of necessity and convenience for interstate operations shall be obtained from the Interstate Commerce Commission. As 75 or 80 per cent of the bus traffic is intrastate, and practically all of the highways used belong to the states, it seems advisable and right that as much authority to control interstate highway commerce should be given to the states as can be permitted under the Constitution and as is consistent with proper regulation of the business.

Highways Must Be Properly Used

Such legislation and regulation, if based on equitable principles, as we assume they will be, will promote rather than hinder the orderly development of the bus industry, because they will encourage the organization of strong, well managed companies and discourage the multitudinous poorly financed and poorly operated concerns, which are wasteful by reason of the excessive amount of competition afforded and the poor methods of operation followed. Licensing drivers of all private and public motor vehicles seems to be a natural accompaniment of this motorized age in which we live, but several states still permit practically everybody to drive regardless of physical or mental fitness.

The requirements of highway public carriers for the accommodation and protection of their patrons are becoming quite well defined, and no concern has any right to expect that it can permanently continue in the business and disregard them. Generally speaking they are:

1. Good vehicles well maintained.
2. Good drivers with enlightened supervision.
3. Insurance or financial responsibility for protection against accidents and property loss or damage.
4. Convenient schedules strictly adhered to.

5. Reasonable charges consistent with cost and operating conditions.
6. Proper consideration for other vehicles on the highway.
7. Observance of rules and orders of highway commissioners or other authorized public representatives.

Non-observance of some of these requirements by some bus and truck operators have made those vehicles as a class quite unpopular on occasions. Many trucks are to-day making improper use of public highways by careless and selfish driving; by having trucks or loads that are too wide and trailers that do not track closely; by excessive loading; by failing to display tail lights; by running with hard rubber tires that are worn to the rims in places and do damage to pavements and other road surfaces. These and other improper practices are abuses, not uses, of public property, and will be eliminated by proper regulation. Abuse of public property and privilege, however, has no place in a discussion of the economics of highways transportation. Since 95 per cent or more of the trucking is done in privately owned and operated trucks, the abuses by common carriers are relatively slight, and the control of the private truck may be difficult. But the point is that to complain about these things will not help the railways; a constructive attitude is necessary.

TAXATION

The question of taxation of highway common carriers probably is the most important phase of the public relations of that industry, and there is a notable lack of uniformity in the methods employed by the various states. A tax on gasoline, however, is now imposed by all and ranges from 2 cents to 5 cents per gallon. In Minnesota, there is a tax of 10 per cent of the value per annum in addition to the gasoline tax. This amounts to a total, including gasoline tax, of over $1200 per bus per year, or about as much as is paid by 50 automobiles, and more than double the average bus tax in the United States. The total amount of the tax and the method of calculating it are questions of public interest. Should the tax be reasonable and bus fares low, or should the tax be high and fares correspondingly so and a limited amount of bus service made available? For certain short haul travel, motor vehicles on the highways are able to perform the service more economically than railways can, and so the question is whether the public, having built the highways, shall avail itself of this cheap form of transportation or whether it shall keep the highways for the exclusive use of automobiles. The automobiles, of course, are driven for business as well as for pleasure, and that introduces one of many questions concerning the rights of taxpayers who do not choose to drive their own automobiles or trucks. Those who prefer to use public conveyances may well contend that they have the same right to benefits from the highway by traveling in a bus or shipping in a truck that the individual has who runs his own automobile or truck.

Use Is Most Equitable Tax Basis

The improvement in highways has been so inseparably associated with the development of the automobile industry that it is difficult to say whether it is more the cause or the effect of the phenomenal growth of that industry. However that may be, the science of modern highway construction has improved more in the past 20 years than in all the previous years, and this improvement is bound to continue. Also, the maintenance of highways is certain to be more and more scientific and efficient; highways will be built and maintained for modern traffic, and their use will be so regulated and supervised that excessive loads will be prohibited; and when vehicles would do injury to certain highways, as in the spring breakup in northern latitudes, they will be temporarily debarred from using those highways. The best highway engineers say that modern construction standards are not determined by the presence of common carrier buses or trucks, and that when they are operated according to rules and regulations they cannot be said to add anything to the highway costs. Thus, it is reasonable to say that use of highways by all vehicles permitted thereon will represent ordinary wear and tear and that damage of the road surface or structure will not be permitted. The size of tires enters into the question of weight, for a larger load may be carried with less injury if properly distributed through large, pneumatic tires than a smaller load on small, hard tires. A more precise method may be devised for measuring the relative use of highways by motor cars, and formulae involving the weight and speed of the vehicles might give a closer approximation than gasoline consumption, but that seems to me to be a fair and simple index of use.

Probably the safest and fairest guide or rule of taxation is that commercial vehicles shall pay the same gasoline tax as other users, that this tax shall be contributed towards building and maintaining highways, and that any other tax on vehicles shall represent as nearly as may be the proportion of total use of the public highways which each enjoys.

A thought commonly indulged is that if buses were removed from the highways by taxes sufficiently high to accomplish that purpose, the railways would get the traffic the buses now handle, and that such traffic would be profitable. I do not believe that would be the result. So much passenger business already has gone from the railways to automobiles that local train service consequently has been so curtailed as to make it unsuitable for the people of the average rural community to depend upon for their daily movements. For the railways to be forced to put back in service trains to take care of the slight traffic that would return to them would be a real hardship and loss, and undoubtedly some trains would have to be restored if the principle of taxing buses to the point of elimination should be applied. I am sure the railways would lose in many instances by having the buses forced off short runs that have made possible the removal of unprofitable trains; and these are the buses that would go first because their margin of profit is less than on the longer runs. The public would suffer the loss of a service which in many communities is far better than it ever had before the frequent bus replaced the occasional train; many people would be obliged to use the more expensive automobile; and the aggregate tax contribution would be decreased rather than increased by the process. No one would gain; every one would lose. After all, is not the plan of co-ordinating the important forms of common carrier transportation the sound one for the railways as well as the public?

Assuming that regulation along constructive lines and taxation along similar fair lines are applied, the character of traffic which will be handled on the highway and that which will be handled on the railway will adjust themselves on a purely economic basis. The railways are supreme in the long haul of bulk freight, as well as in the long ride passenger traffic, especially if the passengers use parlor cars or sleeping cars. The very short travel seems to be best handled by private automobiles, except in busy centers where railways, subways, and buses tend to relieve congestion. The intermediate travel, as well as the short haul of freight, seems destined to go more than at present, and to an extent it is impossible to estimate, to the commercial highway carrier.

Railways Benefit from Automobile Industry

I have indicated the loss of over a million dollars a day in passenger revenue of the railways. It is not fair to discuss only the loss to the railways by reason of highway travel. I am of the opinion that the automobile industry has done more to benefit the railways than it has to injure them, and that the railways would suffer along with practically every other business if the manufacture of motor cars could by any stretch of the imagination be stopped over night. What would happen in such eventuality is the true gauge of how this industry is affecting the railways. The transportation of vast quantities of raw materials for manufacturing vehicles and for building highways, such as iron, steel, coal, lumber, rubber, copper, cloth, paint, asphalt, cement, gravel, and sand, must, of course, be considered.

What really has happened is that the phenomenal development of the automobile industry has raised the level of living of the entire population, at the same time adding great impetus to the industrial activity of the country generally. But because this new colossus in industry happens to be a producer of transportation machines, its growth has by the very nature of things resulted in the product of its factories taking from the railways a large part of the transportation functions of the continent. It has caused a many-fold increase in total travel, and has at the same time taken over all of that increase and some that the railways had besides. This, however, is not true as to freight traffic. Any other industry employing the same number of men and using the same amount and kind of raw materials, but not manufacturing transportation machines, would have given the railways a full share in the general prosperity, for in that case the increase in railway traffic would have been proportionate to the increase in manfacturing and construction activity. This, of course, has not been true with the automobile industry for the reasons just explained.

According to the accepted policy of railway regulation in the United States, whatever business the railways do must support their operations and provide funds for taxes and interest charges, as well as maintain their credit so as to make the necessary improvements to keep abreast of the new and more exacting requirements. The loss of passenger revenue and of revenue from local freight must be made up from the earnings on through freight business. The traffic remaining is of a character which requires the highest standard of track, roadway, structures, motive power, and equipment, all of which must be exceptionally well maintained.

Other forms of communication, especially the airplane and the very highly developed long distance telephones, are having a decided effect in reducing long distance rail travel, and these things, as well as highway transportation, must be considered in regulating the railways. Of course, traffic always will move where it can be handled with most satisfaction to the public, and the railways must live on such traffic as is left to them after meeting that test. These other forms of communication, like the railway and the telegraph, are facilitating the spread of information, stimulating right thought and promoting knowledge, upon which, after all, we must rely in solving all of these great public and quasi-public questions.

THE ULTIMATE TEST[1]

GEORGE B. CORTELYOU

This address by Mr. Cortelyou, President, Consolidated Gas Company of New York, and Chairman, Joint Committee of National Utility Associations, was delivered at the annual convention of the American Gas Association, Atlantic City, Oct. 10, 1928.

Mr. Chairman, Ladies and Gentlemen: It is always a pleasure to me to greet my friends of the American Gas Association. From the beginning, I have watched with the keenest interest the growth of the Association in numbers, strength and influence, a growth which has been all the more gratifying because it has been the result of the loyal and enthusiastic support at all times given to its leaders by the entire membership, representing every branch of the industry. We can all be proud of the record it has made, a record of far-sighted provision for the advancement of the industry, in the service of the public.

In the world of to-day we see an ever-growing division and specialization of labor and production. As civilization becomes more complex this process will be accentuated and along with it will increase the interdependence which is so marked a feature of our industrial life. No one is so self-sufficient but that he must depend upon others to supply a large part of his daily needs. No industry lives to itself alone, but depends upon other industries for many things necessary to its existence, and others in turn are dependent upon it. The normal functioning of each is essential to the health and good order of the whole. The failure of a single one will throw the whole out of alignment and bring distress upon large numbers of people. All are vitally interested, therefore, in maintaining a state of balanced production and distribution in which goods and services are exchanged freely upon a basis of equity and justice.

Probably no industry in all the vast network of interdependent activities that comprise our industrial system is more essential to the general welfare than our own—the public utilities—by which I refer more particularly to the gas and electric light, heat and power services. They touch the lives of the people at more points than any other industry. Any retardation of their growth or impairment of their efficiency would be instantly felt throughout the entire economic structure. They are an integral part of the business organism. They are conducted by the same kind of people that conduct other businesses and are subject to the same frailties and imperfections that affect human-kind in general. To get a true estimate of their status and worth they must be seen in relation to the whole of which they are a part and must be judged by the character of their contributions to national progress and prosperity.

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[1] By permission of the author.

Certain critics of the utilities seize upon a few cases of improper or unsound practices of individuals or companies brought to light in the course of an exhaustive investigation—not yet completed and with only a partial presentation of the facts—and on the strength of these frame an indictment against an entire industry. Such cases are rare and exceptional, but to the uninformed they are made to appear frequent and typical. These critics apparently lose sight of the fact that if all their charges were true they prove too much. No industry that made a practice of abusing its privileges and deceiving and exploiting the public could possibly have made the record that the utilities have made over a long period of years. They would have faded out of the picture long ago, having paid the proper penalty of public condemnation. When, instead, we see them covering the land with a service that is well-nigh universal, that is a major factor in our industrial and financial supremacy, that has excited the wonder and envy of other nations, the unprejudiced inquirer is bound to seek some other explanation of their remarkable growth and prosperity.

Of course, to us in the industry the answer is plain. The utilities have succeeded because they have contributed worthily to progress, to enlightenment, to civilization, to all of those things that make life easier and better and fuller for everybody.

I do not mean to say that there have been no abuses. There have been—what industry is free from them? But to gain a proper perspective we must look at the situation in the large. When we do this we see at once that they assume insignificant proportions and are scarcely discernible in the great mass of properly conducted enterprises. When we consider the comparative newness of many of our utility companies, the rapidity with which they have grown, especially in the last decade, the enormous expansion in the machinery of organization, finance and administration required to cope with the volume of business offered, the wonder is not that there have been abuses here and there but that there have been so few. Their rarity can be gauged by the notoriety they have received. What occurs frequently ceases to be news.

We also find the utilities at times on the firing line of criticism from those who would have the government supplant private enterprise in this field—a proposition which I have elsewhere described as constitutionally unsafe, politically unwise, economically unsound and competitively unfair. If the utilities had failed in their duty to furnish adequate and ample service at reasonable cost, and the country had suffered in consequence of such failure, an effort to replace them with a more efficient instrumentality would be easily understandable. But nowhere is such a charge made in responsible quarters. On the contrary, listen for a moment to what Mr. John Spargo, formerly for many years prominently associated with the Socialist Party, says on this point. No one can suspect Mr. Spargo of partiality for the utilities. Speaking more particularly of the light and power industry, he says:

> It is common knowledge that nowhere has private enterprise been more abundantly justified than in this field. No branch of economic activity in any land or any age can show results so uniformly beneficent, so free from ill and untoward effects, promoting the well-being of so large a part of the population. Nowhere else, so far as I know, can there be found an equal record of increasing returns at diminishing cost. Electric power in this country, under private ownership, presents the striking phenomenon of an indispensable commodity for which the demand increases faster than the supply steadily declining in price, in spite of an upward trend of the price of practically every other commodity. Electric energy is the cheapest service the world knows or has known. . . .
>
> Such are the results which have been attained under a system based upon private enterprise subject to social regulation. Where government ownership has been tried it has achieved no results comparable to those which have been attained under the system that has prevailed in this country.
>
> No thoughtful student of our social problems objects to that regulation of our industries which is wisely conceived in the interest of the worker, the consumer and the State, and which permits the development of the industries to proceed with the maximum advantage to all three. The present-day leaders of American industry, with rare exceptions, recognize the need of such regulation and welcome it.

Why, then, do the advocates of government competition with private enterprise single out the utilities as the principal objects of attack? Because to them the utilities seem to offer the line of least resistance. They are already quasi-public corporations; they are affected with a public interest; they are regulated by public authority. They offer a tempting bait to the radical, the theorist and the political opportunist. If regulation can be pushed over the line and made to embrace management, control and ownership, then the cause of government ownership will have received a powerful impetus. From their point of view, this is a logical program.

In opposing this program the utilities are fighting not only their own battles but the battles of industry in general. Let no one deceive himself with the idea that the agitation for government ownership would stop with the inclusion of the utilities. That would be only the beginning. Such an appetite always grows by what it feeds on. Once begun, there is no logical stopping-place short of the complete nationalization of industry, which in the last analysis means either anarchy or despotism.

At the moment, also, there is criticism in some quarters of the so-called propaganda of the utilities. If by the term were meant the widespread dissemination of accurate and comprehensive information regarding these great agencies of public service, we could find no fault with it. But no such fair or deserved interpretation is intended by many of those who employ it. They would have it all imply some sinister or reprehensible practice.

One of the best definitions of the wrong kind of propaganda is that given by a recent witness in a pending investigation:

> Propaganda is a superstructure of misrepresentation erected upon a modicum of truth.

Judged by its terms, it is their most violent critics and not the utilities themselves who deal in this unworthy and misleading publicity; and the utilities are quite willing to go to the people on that issue.

The utilities advertise; so do all other industries. The utilities distribute bulletins of information, historical data, service statistics and financial reports; so do other industries. They even have the temerity to stand up before public audiences, often numbering thousands of their fellow-citizens, and tell them the story of one of the marvels of American business. They establish association laboratories and, where that cannot be done to advantage, they encourage study and research in educational institutions. The study and research thus provided for are fully set forth in public announcements and other documents that are given as wide a circulation as possible, one of the prime objects being to assure an increasing number yearly of highly-trained graduates thoroughly equipped to enter the utility field in the service of the public.

If an occasional agent of some of the many organizations that have been the outgrowth of the industry's phenomenal development, through excess of zeal or wrong-headedness or worse, so conducts himself as to merit public condemnation, should these and similar exceptional incidents furnish warrant for wholesale criticism or sweeping denunciation of a great industry?

With relation to the altogether proper questions that have been raised in regard to the results of studies made of certain school and college text-books and the engagement of teachers and professors as occasional speakers and lecturers at meetings, conventions, and the like, let us wait until we get the whole story—and it will be presented in due course. But meanwhile I should like to call attention to an illuminating side-light on this subject, again from the able pen of Mr. Spargo. In a recent letter to a prominent newspaper, he said:

> I know, and every well-informed student in America knows, that for many years public ownership and socialism have been preached in American colleges, academies and high schools by the paid lecturers of organizations maintained for the special purpose. This was true many years before any public utility publicity bureau in this country ever made the least effort to reach those channels. These paid lecturers did not aim to present objective facts; they did not make the slightest pretense that they were aiming at anything other than converting the students to socialism, to belief in public ownership and all the economic and social changes that belief implies.

From what has already been said, it may be anticipated that when the story is fully told it will be an interesting one and well worth the attention of some of the gentlemen who have been so outspoken in their wholesale criticism.

Of course, no industry can take the position that it is above criticism. Every criticism that points the way to real improvement should be welcomed and adopted. Every industry as well as every individual needs such criticism and should profit by it. But as a great English statesman of the last century said: "It is much easier to be critical than to be correct." We have a harder role to play than our critics, because it is more difficult to build up than to tear down. We should shape our course not so much with a view to escaping criticism as to avoid deserving it; being prepared at all times to meet falsity with truth, prejudice with reason, rumor with fact.

In any public controversy the utilities must present their case through the medium of information and publicity. As I said in an address last fall before the American Electric Railway Association—speaking as Chairman of the Joint Committee of National Utility Associations (which Committee had its genesis in the late war):

> There is neither mystery nor hidden purpose in the program of the Joint Committee. Its work will be carried on openly and frankly. It seeks no favors; it asks only that its presentation of the utility situation shall be considered and dealt with on its merits. But that such presentation may be so dealt with, it exercises the common right of all American citizens or organizations to be heard on all matters in which they are interested that become the subject of public debate or decision; and having presented its case it will with confidence abide the informed judgment of the people.

And on another occasion:

> Through the Joint Committee the constituent associations can more readily assemble and present . . . individual or combined statistics and other data than if each association acted separately in its own behalf. Through it also they reflect their views on certain major problems affecting their common interests. It has nothing whatever to do with their internal affairs and speaks for them only where it is proper that the industry as a whole should be heard in justice to itself and the public it serves.

There can be no just quarrel with any one who takes his case openly to the people and lays before them complete and fully authenticated information upon which they can arrive at right conclusions. That is what the Joint Committee is doing and will continue to do. It follows this course in the firm conviction that the American people are not impressed with half-truths; that they want information rather than innuendo; that before passing judgment they want to hear all of a story, not merely a part of it; that they want all the facts before rendering a verdict; that in the last analysis they give their confidence to the individual or the organization that meets the test of service to them and to the nation.

There is neither a power trust nor a power lobby. There has not been, nor is there to-day, any effort, concerted or otherwise, upon the part of the utilities to distort or misrepresent their policies or their accomplishments. Their critics have been unable to disprove either the statements or the statistical data embodied in their publications. In respect of their factual accuracy and adherence to truth, these publications differ strikingly from the outgivings of some of their politically-minded opponents.

Whenever an investigation of utility affairs discloses the existence of practices that are at variance with the spirit of American institutions, the industry will be the first to condemn them and to demand their suppression. The Joint Committee holds no brief for any individual or company whose acts do not square with this standard, and in stating its position in this regard it is convinced that it represents the aims and purposes of the utility industry.

With a high sense of public obligation, let us set up as our goal the ideal of perfection, even though we shall never reach it. And perhaps this is just as well, having in mind the line of Browning's—

> What's come to perfection perishes.

At the present moment, I know of no individual or industry in danger of perishing from this cause.

When all is said and done, as to all branches of the utility industry, our strongest bulwark against the unfair critic and the propagandist is our record of service. If that record shows that we have been diligent in the public interest, in reducing costs, in making betterments, in extending facilities, in sharing with our customers the benefits of improved efficiencies—in a word, in doing all of those things that come under the head of good service—the advocates of unsound and pernicious doctrines will find scant encouragement in public support. We cannot afford to let any other activity interfere with our fundamental duty of giving the public the best service of which we are capable, at the lowest price at which it can be supplied. That must always be our warrant for asking the continued support and confidence of the people. That is the ultimate test of our value as organizations of public service. The strength of our position to-day is that on our record of performance we have justified private enterprise, publicly regulated, as being the best and most efficient means of rendering utility service to the people of this country; and in the future that record, made stronger by still better performance—supplemented by the use of all proper channels of information and publicity—must be our main reliance in seeking their continued favor.

The future of the utility industry is bright with the promise of immeasurably greater achievement. Growing as it is in every State and every section, with widespread extension of its facilities, the thickly settled portions of the country are but one of the many sources of its phenomenal development. Through city and village and hamlet to the farms of the nation and the remote reaches of its countryside, it is carrying heat and light and power, adapted to a myriad uses. Wherever it goes it is a symbol of progress. Keep it so. Raise its standard of public service high and ever higher in the sight of all the people, and thus merit their full confidence—our greatest asset.

LATIN-AMERICAN TRADE RELATIONS[1]

VICTOR M. CUTTER

Mr. Cutter, President of the United Fruit Company, delivered this address at a joint meeting of the National Chamber of Commerce and the Third Pan-American Commercial Conference, Washington, D. C., May 4, 1927.

Mr. Chairman, Members of the National Chamber of Commerce, and Delegates of the Third Pan-American Commercial Conference:

Señores Delegados: Es para mi especialmente grato dirigir el más cordial saludo a los señores Delegados a la Tercera Conferencia Commercial Pan-Americana, en la lengua de las Repúblicas de la América Latina, porque considero que el conocimiento recíproco de nuestros idiomas es factor de gran importancia para el desarrollo y estrechamiento de nuestras relaciones.

If any one here does not understand what I have just said, it means that he is not ready to enter Latin-American trade.

It is a rare pleasure to be able to talk on an increasingly important subject and especially when it is possible to be sincerely optimistic without any doubts or qualifications. Future trade relations between the United States and Latin America fully meet this specification because a new era is coming in this trade and all factors are favorable.

What Were Conditions Twenty Years Ago in the Two Americas?

Two decades ago trade between North and South America amounted to about two hundred million dollars per annum, as compared with a trade of a billion dollars today. There were in South America few roads; railroad construction was barely begun; there were few steamship connections with the United States, no Panama Canal, few social, educational, or cultural contacts between the two continents.

In the United States there was only a limited consciousness of need for trade expansion; there were comparatively few large corporations, and production problems were largely unsolved. There was a very limited realization by the people of either continent of a need for closer relations or for interchange of the products which could be most economically produced in each locality. Standardized custom laws, tariffs, postage and parcel post rates, quarantine laws, had not been discussed. Neither continent was fully awake.

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What Is the Present Economic Situation in the United States?

There has been greater economic development in the last twenty years than in all the previous history of our country. Production methods have been solved so that for the first time we have not only a surplus of agricultural products, but a surplus of maufacturing power and manufactured goods. We have become a creditor nation and have a vast surplus, not only of gold, but of banking capital, seeking investment.

What Is the Present Economic Situation in Latin America?

There has been a tremendous increase in transportation and communication facilities; plantations, mines, and oil resources have been developed; the old prejudices against trade and industry have broken down; and the entire Latin-American area is fully awake and ready to take its rightful place as one of the great trade areas of the world. The influence of the motor car has been felt and has brought about for the first time in Latin America the era of roadbuilding. This one factor alone is needed to release the vast potential resources of the richest undeveloped countries in the world. It is safe to predict greater developments in the next ten years in Latin America than we have witnessed in all the years since the Spanish Conquest.

What Trade Does the United States Need?

We need trade, not so much with European manufacturing countries, as with undeveloped, agricultural regions. We need all of the products which the countries to the south of us can furnish—rubber, nitrates, coffee, sugar, hard woods, tropical fruits, hides, wool, and many others. We need markets for our manufactured goods, machinery, and especially for our banking capital.

What Trade Does Latin America Need?

The age of manufacturing in Latin America has scarcely begun; her countries are largely undeveloped and are agricultural or mining, and must remain so for many years to come. Latin America will need manufactured goods such as we can furnish; she will require machinery, railway and road material; and especially she will need capital for public improvements and equipment of all kinds to care for the tremendous economic development which has just begun.

What Will Hinder This Trade That Both North and South America Need?

There has been for years past much discussion of the differences in race, language, and culture; of the fear of imperialism; of economic invasion; of political domination and impairment of sovereignty. On the other hand, there has been no question about the economic need for closer trade relations, as already outlined. From every point of view closer contacts are desirable. It is not possible for the sensible, courageous business men of the two greatest continents to allow a handful of self-seeking politicians, propagandists, and other pernicious persons by their baseless chatter to balk our efforts to establish a great and mutually advantageous trade which will be followed by educational, social, and cultural contacts, with the resulting harmony which we all desire.

We business men know that from an economic point of view imperialism is a failure. Trade does not follow political boundaries, but is governed by economic needs. The United States government has repeatedly stated that its aims are not imperialistic, and it is certain that the people of this great country have no designs upon their neighbors to the south. There should be no economic invasion as part of the policy of any government, north or south. Each government should give all possible statistical and other aid to its business men, but enterprise should be left to private initiative. There must be mutual respect for international law and its corollary, the protection of property and lives of citizens of each country in every other country.

Contrary to alleged popular impression, there is no exploitation today nor are there monopolistic concessions anywhere in Latin America. Numberless statements have been made on this subject, but never have evidence and facts been presented or proof furnished.

All of these hindrances must be totally disregarded for the reason that proofs are already available as to their absurdity. In spite of all the talk and political bunk about these difficulties trade has vastly increased; which means that capital—which is the shyest thing on earth—has been and is being invested in increasing amounts. The profit motive is the basis for our economic decisions and it is the judgment of business men, both north and south, that trade is mutually advantageous and will increase. Talk to the contrary is all by propagandists and not by responsible business men or corporations, who, in spite of all alleged difficulties, have been and are steadily increasing their contacts, trade, and investments.

The answer is clear. There are no real hindrances to the development of our trade, except the present state of mind of a handful of propagandists which can be corrected by sane business men through proper publicity as to actual facts.

What Can Governments Do to Help This Trade That Both North and South America Need?

All the governments can greatly aid business men by simplification and unification of shipping, harbor, and pilot requirements; simplification of customs and tariff requirements; and extension of postal, cable and radio communications.

The governments of all countries, both north and south, should have a clearer definition of foreign policy and a continuance of the efforts which have been made through the Pan-American Union and other agencies for closer mutual understanding.

The most important step than can be taken is to appoint the ablest men and to change the mental attitude of some of the present diplomats in South and North America. A number of consular and diplomatic officers appointed between the American republics consider their work in North or South America only as a stepping-stone to a bright and merry social life in the older capitals of Europe. The positions of honor and the goal of diplomatic careers for our ablest men should be appointments as between the various American republics where there is the greatest need for closer economic and cultural understanding. The diplomatic butterflies might well be allowed to flit to the social centers.

What Shall North American Business Men Do to Win South American Trade?

They must realize that greater efficiency is needed in foreign than in domestic trade. There must be built up what is now entirely lacking—a North American personnel eager to go to foreign fields that will understand the social and cultural life and the language of Latin America as well as the business facts. North Americans must learn that building foreign trade is an art—and that art is long.

Foreign trade is not to be built by sporadic effort in times of depression, but must be a continuous process over a long period of years. We must learn that foreign trade is built on its merits and should be subject to the laws of the countries in which business is carried on. Friends are not made and business is not developed by situations which result in the dispatch of warships or appeals for protection of the home government. It is built by thorough investigation of conditions, sound and efficient management, and the rendering of service—all of which is not incompatible with proper financial rewards.

What Shall South American Business Men Do to Win North American Trade?

They should encourage their governments in promoting wise laws which will furnish a stable basis for the investment of large sums of capital, but which will not hamper the development of trade. They must realize that in largely undeveloped countries capital must be employed in large units. Risks are too great to be undertaken by individuals who cannot wait long years for the development of plantations, mines, and other businesses.

Our business friends in South America should not fear large corporations or large aggregations of banking capital. Size means responsibility. It means that the ablest men are in charge of operations and that there will be the fullest use of modern business practice and a realization of the need for service and development. The days of exploitation are over. Modern history shows that exploitation has been practised only by small, irresponsible companies and individuals, never by great companies or corporations which realize that permanent business—which is their aim—can only be established on the sound basis of square dealing.

There should be no resentment at the need for borrowing capital. The United States until recent years financed nearly all its railroads and economic developments with foreign capital. It should be borne in mind that a creditor nation must always be helpful and not harmful, otherwise the value of its investments would be destroyed.

ARE PHYSICAL CONDITIONS AND FACILITIES FOR NORTH AND SOUTH AMERICAN TRADE AVAILABLE?

This question answers itself. Harbor facilities and railways are being constructed all over Latin America. Banking connections have been made. Ships and steamship lines are already built and established. Transportation facilities of every kind are available. Communications by cable, wireless, and telephone have enormously increased. The Panama Canal has been built. The stage is set for a vast increase in trade.

CONCLUSION

There will indeed be a new era of business in the Western Hemisphere. The day of ruthless monopoly and the predatory business man is past. We have begun in both North and South America an era of business understanding, which always precedes social, political, and cultural harmony. Progressive and successful business men of both continents know today that honorable dealing and service are not incompatible with big business and profit—that they are indeed synonymous with permanent and satisfactory business relations. All factors are present for vastly increased and mutually satisfactory trade. Business men of integrity will unite to bring about the greatest progress ever made in any era, which will give to North and South America—the whole Western Hemisphere—the industrial, economic, and cultural leadership of the world.

THE PROPOSED ST. LAWRENCE WATERWAY[1]

HAROLD G. MOULTON

Dr. Moulton, Director of the Brookings Institution, Washington, D. C., delivered this address at the Chicago Traffic Club Luncheon, Mar. 21, 1929.

MR. CHAIRMAN AND GENTLEMEN OF THE TRAFFIC CLUB: My address will be concerned primarily with the St. Lawrence Waterway project; but inasmuch as the St. Lawrence is only one of a number of waterway enterprises designed as a part of a general program for the rehabilitation of our waterways and their coordination into one great system, I shall begin my address by devoting a few moments to the history of the revival of interest in water transportation and to the part that waterways have played in the development of this country.

There is a great deal of romance associated with American waterways. It was over our waterways that Father Marquette and La Salle explored a new continent, and it was by means of these waterways that our ancestors came into the valleys of the Middle West, and it was along these water courses that they built their homes and reared their families. Indeed, I think we can fairly say that in the early history of this country, waterways played a dominant role in the development of the great interior. The construction of the Erie Canal in 1825 meant a very great reduction in the cost of transportation between the Middle West and the Atlantic Seaboard, and laid the economic basis for the great prosperity, the phenomenal growth and development of the interior of this country.

The history of waterways has been fairly similar to this in other countries. During the latter part of the eighteenth century and the first quarter of the nineteenth century, Great Britain, Germany, France, and the Low Countries each passed through a great era of canal development; everywhere, prior to the coming of the railroads, water transportation provided the basis for geographic specialization, and the trade which resulted therefrom; it made possible the growth and spread of industries. But during the second quarter of the nineteenth century, railroads were developed in this country and in Europe, and, in due course, with the development of the railway net, water transportation began to lose ground. By the end of the third quarter of the nineteenth century, canal and inland water transportation, as distinguished from that on the ocean and the Great Lakes, was definitely on the wane, not only in this country but in the countries of Europe as well. And in Europe, no less than in the United States, in the latter part of the nineteenth century tolls were abolished on all inland waterways. Whereas they had originally been built as commercial enterprises—with the tolls levied against shipping designed to cover the overhead costs—in the latter part of the nineteenth century, water routes were unable to compete with railways if they longer charged tolls. The waterways then tried to keep the pace by omitting all overhead capital costs and maintenance charges and transferring them to the taxpayers.

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[1] By permission of the author.

Now, in this country we have been inclined to say that the defeat of water transportation was due to unfair practices on the part of the railroads, that they cut rates where water competition was available and maintained them higher elsewhere. There is a long story in this connection and I cannot enter upon it here; I must point out, however, that the same phenomenon occurred in European countries where the railroads were under strict governmental control. In brief, everywhere, in the latter part of the nineteenth century, inland water transportation proved unable to compete with rail transportation.

Even after the shippers ceased to pay tolls over the waterway, with half the costs transferred to the taxpayers, water transportation continued to decline; and with this continuous decline there arose an agitation for the rehabilitation of our waterways. Our first notion was that the trouble with the inland waterways was that they were something like seven feet deep instead of ten or twelve. The first important new development came with the authorization of the New York State Barge Canal in 1904, which called for deepening the old Erie Canal, from seven to twelve feet, the idea being that if the depth of that channel were as much as twelve feet, the grain which was being diverted to rail routes would move over the Erie Canal and that many other commodities would also be carried. In brief, all the gains now claimed for the St. Lawrence were claimed for the barge route 25 years ago.

If we had made any study of the history of water transportation in Europe, we would, however, have known perfectly well that the trouble with the Erie Canal was not its inadequate depth. As a matter of fact, practically all of the inland water-borne commerce of Germany was carried over channels less than seven feet in depth. The trouble was of a different character, but that was not discovered, and so the State of New York appropriated $101,000,000 in 1904 for the construction of the 12-foot barge canal.

I first studied the barge canal project in 1910, when the waterway was still far from completed. I predicted, on the basis of an analysis of the cost of other canal projects, that, before the barge route would be ready for traffic, it would cost something like $170,000,000. Interestingly enough, in the original appropriation of $101,000,000 there was no mention whatever of the necessary terminal facilities, and it was not until some years later that it was discovered that a waterway without adequate terminal facilities would be just as helpless as a railroad without terminal connections in the great centers. So they had to add a good many millions of dollars for that. To make a long story short, the cost up to 1918 was about $170,000,000, not counting the interest that had been accumulating during the period of construction, and by 1925 the Erie Canal had cost the State of New York, including these accumulating interest charges, as much as $230,000,000, the annual burden to the state being about $10,500,000. The Erie Canal has had less traffic in the last three years than it had during the last three years of the operation of the old Erie Canal before the tolls were taken off, between 1878 and 1881.

So much by way of general introduction with reference to some of our waterway history. I have had to touch very briefly on it in order to save time for a discussion of the major project under consideration, namely, the new St. Lawrence Waterway.

In brief, the St. Lawrence Waterway involves the canalization of the St. Lawrence River to a depth of twenty-seven feet for a distance of some sixty or seventy miles, thus making it possible for ocean vessels to come into the Great Lakes. The costs of the improvement in the river were estimated as follows: for the construction of the waterway proper, about $450,000,000, of which about $213,000,000 is assigned to power development. This cost of $450,000,000 does not, however, by any manner of means indicate the total cost to the governments of the United States and Canada for making this waterway available for the needs of ocean shipping.

In the first place, the estimates of the engineering board admittedly do not include interest during the period of construction; in the second place, they allow nothing for the cost of harbor improvements and port development; third, they do not include the cost of deepening interconnecting Great Lakes channels, nor did this particular figure include the cost of the Welland Canal, which is being undertaken as a separate project by the Canadian government, amounting to $115,000,000.

I estimate that the total cost for navigation alone will be over $700,000,000, and that the additional costs assigned to power in the International Rapids section of the river, that portion of the river that flows between the United States and Canada, will be about $220,000,000. Beyond this, the engineers estimate that in the lower reaches of the river, in the purely Canadian part of the river, eventually power development will add costs of about $225,000,000. So we have a project here, the total cost of which would ultimately be in excess of $1,100,000,000, of which a little over $700,000,000 is properly chargeable to the navigation, to the transportation aspect of the case, and it is only with the transportation phase of the case that I can deal today.

I want to enlarge upon the reason for increasing the estimated cost of the navigation project to $700,000,000. We have not made, obviously, a new engineering investigation, but we have had a great deal of useful experience in gauging the accuracy of engineering estimates of waterway projects. For example, the Manchester Ship Canal, built in the nineties, was estimated to cost $40,000,000, on the basis of very careful engineering surveys. The eventual cost proved to be $80,000,000. The Suez Canal, it was estimated, could be constructed for $30,000,000; the eventual cost proved to be $80,000,000. The Panama Canal estimates called for an expenditure of $140,000,000; it finally proved to cost $375,000,000, partly due to a change of plans that appeared to be wise as the work progressed. The Chicago Drainage Canal was estimated to cost $15,000,000, and the cost proved to be $53,000,000.

The St. Lawrence is a river that presents peculiar difficulties, and anyone who reads the engineering report carefully must recognize that the engineers themselves are none too sure that these costs will prove to be the total costs. There is a real hesitancy, a lack of dogmatism, in the estimates that they have given; and they call attention to the character of the problems which make it difficult to present precise estimates.

In making an increased estimate for the cost of river improvements, we raised the totals by only twenty per cent. In all these other cases that I have given you, the eventual cost proved to be 100 per cent beyond the original estimates.

The cost of harbor improvements and port developments lay quite outside the scope of the joint board of engineers that was appointed to consider the St. Lawrence Canal. It is obvious, however, that these costs must be included if we are to measure the rest of the project as a whole. The problem that is presented in estimating the cost of the necessary harbor improvements is difficult. It will be useful to compare some of the unimproved harbor sites on the Great Lakes with some of the great natural harbors along our coasts.

The Puget Sound Inlet, containing some 2,000 square miles of water surface, is equivalent to one-fourth the area of Lake Ontario. The minimum depth of water in this great inlet is over 100 feet. San Francisco Bay is forty miles long, three to ten miles wide, and has thirty-six square miles of anchorage space with depths of forty feet or more. The lower bay at New York contains about thirty-six square miles; the inner harbor more than five square miles with a depth of 40 feet or more, and the total shore line of the inclusive port district at New York (under the plan of development proposed by the Port of New York Authority) is estimated at about 800 miles.

On the other hand, the locations of lake harbors are the mouths of small streams. The channels of these streams are tortuous and sluggish. They are not only too narrow to permit the construction of piers and keys, but they are even too narrow to permit the modern lake freighter or ocean vessel to turn around. Except as improved, they have had depths ranging from two or three up to sixteen or seventeen feet. The natural bays into which they discharge are open, offering practically no protection to shipping, and are subject to heavy shoaling. Only Kingston and Toronto, I think it may be said, among the lake cities have a natural protected area which could be readily improved as an outer harbor.

The improvements which have heretofore been made in lake harbors in the interest of lake navigation are entirely inadequate for overseas trade. Cleveland has an artificial outer harbor of about two square miles, but much of this protected area has limiting depths of nineteen feet or less. None of the other lake cities have outer harbors which could be considered of any commercial importance for ocean-going vessels. The principal river channels, anchorage areas, turning basins, and slips which have been improved to accommodate traffic have limiting depths of eighteen to twenty feet. Minor channels, smaller basins and slips used by the smaller lake vessels have limiting depths of from thirteen to eighteen feet.

Finally, it is necessary to take account of the layout of existing port facilities. Grain elevators, industrial wharves, railway freight yards are, characteristically, in these cities located back some distance from the lake front. Warehouses and terminal sheds have been built on the river's edge, parallel to the course of the stream, or they are located on small basins which have been dredged back from the river front. Much of the commerce and industrial development in practically all of the lake ports has of course been built up without any regard to ocean water transportation.

These data are sufficient to indicate in a general way what would be involved in coordinating lake cities with international trade routes. In order to create a larger outer harbor and good lake entrance channels to it, miles of breakwater would have to be built, and some thousands of acres would doubtless have to be dredged. If ocean-going cargo liners were to penetrate into the inner harbors and serve the existing industrial and commercial interests, a vast amount of work would have to be done on widening and deepening river channels and turning basins. With deeper channels, existing wharf structures would undoubtedly have to be rebuilt or reinforced, many new piers would have to be constructed, presumably adjacent to the outer harbor where water frontage would be available; bridges, street railways, park systems, railway reclassification yards and terminals would in many cases have to be relocated.

The cost of these developments I do not know; but we have some evidence as to the cost of other harbor developments which is worth considering because of the light that it throws upon the problem before us. Liverpool since 1859 has spent more than $190,000,000 in developing her port. The London Port Authority, created in 1908, paid approximately $112,000,000 for the properties which it took over, and since then it has expended $58,000,000 on further improvements. Glasgow expended $44,000,000 between 1860 and 1909. The development of Boston Harbor, exclusive of wharf and terminal construction, has cost $25,000,000. The federal government has spent approximately $10,000,000 on Baltimore Harbor, and the State of Maryland has expended about $13,000,000. The State of Maryland has recently authorized the City of Baltimore to spend $50,000,000 on new public terminals. San Francisco, since 1909, has spent something like $50,000,000 on terminals. New York City has an investment of $30,000,000 in its Staten Island piers alone. Among the lesser American ports, Galveston has spent approximately $11,000,000 on the harbor proper; Jacksonville $7,000,000 on channel improvements; and Charleston, S. C., approximately $6,500,000. The Alabama State Docks Commission has begun the construction of modern port facilities at Mobile, the ultimate cost of which is estimated at $10,000,000.

On the basis of such evidence as that, I conclude that for something like ten lake harbors which were supposed to be tied in with this international transportation system, an average cost of $25,000,000 for the cost of harbor improvements and terminal facilities is low. It is on the basis of such consideration that I estimate that to make Chicago and other lake ports really connected with international shipping routes would involve a cost of over $700,000,000.

So much for the cost of this project. I want to turn next to the question of the depth of channel that is really required. The figures that I have been giving you are for the proposed depth of twenty-seven feet; a depth of twenty-seven feet would accommodate ocean vessels drawing roughly twenty-four feet, about a three-foot margin being required between the bottom of the ship and the bed of the channel.

Is a depth of twenty-seven feet adequate to bring the kinds of ocean shipping into the lakes which we have been led to believe would come in if this channel were constructed? In order to find out whether or not ocean ships generally could navigate a twenty-seven-foot channel, we have made a very exhaustive study of ocean shipping. It presented a very difficult problem because of the lack of adequate data in readily available form. To make a long story short, we have found that a depth of twenty-seven feet would accommodate practically none of the combination passenger and cargo vessels now engaged in overseas trade; it would accommodate only thirteen per cent of the tonnage now operating on regular schedule out of Montreal; it would accommodate only about forty per cent of the tonnage of the grain tramps now moving out of Montreal, and it would accommodate only thirty-eight per cent of the tonnage of all cargo boats, including tramps, at present engaged in the overseas carrying trade of the United States.

Our conclusion is that it would require a depth of thirty-three feet to accommodate the better types of ocean freighters now being constructed in ocean shipping yards.

We took this question up with the leading shipping countries of the world, with a view to ascertaining the draft of vessels which they are now building in their shipyards and which may be fairly characterized as the efficient type of ocean cargo liner (I am not referring now to the large combination passenger-cargo vessels), and the evidence is that a depth of thirty-three feet would be required to accommodate the better types of ocean cargo liners of today, and particularly of the future, because the depth is steadily increasing. In this thirty-eight per cent of the vessels engaged in overseas trade that it would now accommodate of course are included a great many of the older boats, including all of those built during the war period, which are of shallower draft, and many of those vessels which are gradually disappearing from ocean commerce.

I don't know what it would cost to provide this extra depth, for no investigation has been made by anyone of the extra cost involved in deepening this channel down the St. Lawrence from twenty-seven feet to thirty-three feet; nor do I know the cost involved in deepening the interconnecting lake channels to an extra six feet; nor do I know the cost involved in constructing lake harbors to a depth of thirty-three feet as distinguished from twenty-seven. But it is perfectly clear, of course, that the cost estimates of this project, if indeed it must be thirty-three feet in depth to accommodate the types of ocean shipping for which it is supposed to be intended, would have to be very greatly increased.

At the beginning of my studies of this problem I had assumed that there was no question but that if we had a channel depth adequate for ocean ships, ocean ships would come in. But I have run across so many curious things during my studies of waterway problems that I finally asked myself whether there was any assurance that, even if we had a depth of thirty-three feet, these ocean vessels would find it profitable to enter the lakes; and with some timidity I drafted a series of questions which were designed to bring out the issues involved, and took this question up with all the leading shipping companies of the world. I asked three main questions, and I am going to read these questions, because it will help you, I think, to see what the issue involved is.

I presented in the letter to the shipping companies, the general data about the character of the route, the number of months that it would be open during the course of the year, and the nature of the shipping hazards that exist.

The first question I asked was: Would it be practical to operate regular liners, cargo liners, out of the Great Lakes during the summer months, and then shift the vessels so employed to regular service on other trade routes during the winter months?

It occurred to me, you see, that here was a route open for only a little over half of each year, and that there might be a serious problem with reference to what to do with those ships during the rest of the year. I will read just a few of the answers to this question, so that you will see how the ship owners regard the problem.

> There is no general increase of overseas trade during the winter months which would enable established trade routes to absorb this additional tonnage

freed from the Great Lakes, and competition is too keen to permit outside tonnage to come in and take the business away from the established lines for part of the year.

Another reply:

> To operate successfully a regular service, the trade should be maintained by vessels especially adapted for that service, and with as much regularity as possible. It would, therefore, be difficult to operate regular liners out of the Great Lakes during the summer months and shift these vessels to other trade routes during the winter months.

Another says:

> Liners built for this special trade cannot possibly be employed in regular trade routes during the winter months, because other routes which would require the same kind of steamers generally must be supplied with adequate tonnage throughout the year, and we do not know of one of our services [this was from one of the biggest shipping companies in the world] which would require an extra supply of tonnage during the winter.

Another says:

> It would be quite impractical to operate regular liners out of the Great Lakes during the summer months, because in these days of intense competition no regular service of such irregular nature is likely to meet with the support of the necessary clientele to make the venture a success.

In brief, out of a large number of answers it was practically unanimous that regular liners at least (mark the distinction between liners and the trampers for the moment) cannot be operated for half the year on the Great Lakes and then be shifted during the rest of the year to lines where their operation would be profitable.

The second question I asked was: Would it be feasible to operate ships over the St. Lawrence route as regular liners during the summer months, and then place them in tramp service during the closed season of the St. Lawrence?

My first question was, you remember: Could they be put in other regular trade routes operating on regular schedule? The answer here is substantially the same.

> The suggested alternative of placing in tramp trades, during the closed season of the St. Lawrence, vessels employed as regular liners during the summer months, appears more feasible than the above, offhand, but as the question here involved calls for the construction and use of a relatively large and fast type of cargo liner, I doubt very much whether vessels of this type could be operated profitably on the open charter market as tramps. Moreover, the range of em-

> ployment for those vessels while engaged as tramps would be strictly limited, owing to the fact that they would be required to reenter their regular service at specified dates.

Another says:

> Vessels employed as regular liners on the lakes would have difficulty in dovetailing tramp schedules during the winter season with their schedules for the Great Lakes service during the summer season.

The story is this, in brief: that so far as regular liners are concerned, the men best qualified to know are very, very seriously in doubt whether it would be profitable to establish such services over a distinctly seasonal route.

When it came to the tramp ships, there was also some real, genuine doubt expressed. I have one letter, for example, from a Norwegian line which is operating vessels in tramp service over the existing St. Lawrence route, and they make that same point, that they found it impossible to shift those during the other seasons of the year into remunerative lines of employment. They also point out that the competition of trampers on the Great Lakes will be very severe because the Great Lakes steamers are of a superior type, from the standpoint of economy, to any of the ocean vessels.

My own conclusion on the basis of all this is that the most we could expect, even provided we had a thirty-three-foot channel, in the way of shipping services into the lakes would be tramp vessels coming in to carry special cargoes of goods and, possibly, a second-class cargo liner service between the United States and North Europe.

Why did I come to the conclusion that there might possibly be something in the way of a general liner service between the United States and North Europe? The reason for that arises out of our analysis of traffic conditions. We have made a very careful study of the traffic available for this route. We have taken up every important commodity that might possibly use the St. Lawrence, and have made a special appraisal of that particular item of traffic. We have asked: Where is its place of origin precisely with reference to the waterway? We have asked where its destination is, and we have considered the rates that it now has and we have considered the problems of commercial organization that are involved in connection with that particular traffic. Having made a preliminary analysis, in most cases we have taken this problem up with traffic managers in the industry concerned, with a view to getting their criticisms of the character of the analysis that we have made and their judgment as to the estimate at which we have arrived.

We found in the course of our traffic investigations a very significant fact. We found that practically every traffic man when first approached about the St. Lawrence Waterway expressed himself as follows: "Yes, we are in favor of the waterway; it is no doubt a very good thing." But when we took up his particular traffic problem with reference to the route, we found in almost every case that he discovered a good many special reasons why it was doubtful whether his particular industry could make as large a use of this route as others might make. Well, after we have talked with a score or more and each of them finds a great many special reasons why this is not adapted to his particular commodity, we are inclined to be a little hesitant about concluding that a vast volume of traffic is available. I should not like to be misunderstood in this connection. We have found, as a matter of fact, that a very considerable volume of traffic would be likely to use the water route if adequate shipping facilities were provided. In brief, we concluded that about 10,500,000 tons of traffic by 1940, allowing for growth in the interval, might be available for this route. We took 1940 because, presumably, that is the date at which the canal might be available.

Now, to relate this traffic analysis to the problem of shipping, we found that in only one route, namely, between the United States and Europe, is there that necessary balance between outbound and inbound cargo to warrant the establishment of regular liner service.

The annual cost to be borne by the government on the investment in this waterway, plus the maintenance and operating charges which are also to be borne by the government, would amount to about $40,000,000 a year. Spread over an estimate of traffic of 10,500,000 tons annually (the highest estimates that have been made by others are about 30,000,000 tons), we have nearly $4 per ton that we, the people of the United States and Canada, are expected to contribute in the form of taxes, in order to give the shippers the benefit of a toll-free waterway.

Those who argue that water transportation is only a fraction as costly as transportation by rail, of course always start with the assumption that the rates charged tell the whole story with reference to cost. The truth of the matter is that, in the case of railroad rates, the rates paid by the shippers cover not only the cost of moving the goods, but also the cost of maintenance and upkeep of the way and structures, the interest on the overhead investment, and, indeed, taxes which are paid to the government by the railroads, whereas, in the case of the waterway, the rate covers nothing but the interest on the investment in the ships and the cost of moving ships between given points.

I want to say a few words about one other phase of this project, because one of the strongest arguments in its support has been the argument that we needed it as a means of relieving traffic congestion. The movement for the St. Lawrence Waterway began in earnest about 1919 when we did suffer very materially from traffic congestion on the railroads. In the years that have ensued, as most of you know, the railway service has very greatly improved, and at the present time we have nothing in the nature of traffic congestion. Looking forward, I can see no reason to believe, barring unforeseen financial obstacles in the way of railroad development, that the railroads will not be able to render continuously satisfactory service, and to take care of all the traffic that is available. But let us assume for the sake of the argument that by 1940 we should again have a serious problem of traffic congestion. Looking at this from a broad national point of view, we have to ask whether the waterway, as is supposed to be the case, is the only means whereby that traffic congestion might be relieved. In other words, would it be possible to relieve such traffic congestion more efficiently and more economically by other means?

Just to get some light on that I have asked myself how far would $700,000,000 go in the way of providing additional railroad facilities? Suppose, for the sake of the argument, that private industry, private initiative, does not give us the facilities needed and the government has to go into the transportation business in order to serve the needs of this country. How far would $700,000,000 go if expended by the government for the development of an all-freight railroad between, say, Chicago and Boston? The average investment in the Class I railroads of this country in 1927 is given as $127,000 per mile. I estimate that certainly it would be reasonable to say that for $250,000 a mile a double-track, all-freight railroad could be constructed between Chicago and Boston. That would make a total cost, for the 1,030 miles, of approximately $260,000,000, approximately one-third of the cost of building the St. Lawrence River.

But, it will be asked, would the capacity of a double-track, all-freight railroad be anything like the capacity of the St. Lawrence Waterway? Most people assume that the capacity of a waterway is very, very large and that the capacity of a railroad is relatively small. They do not recognize in the case of the waterway what the limiting factor is. The limiting factor is the number of boats, the number of tons that can pass through the locks in a given period of time. The total capacity of the waterway, assuming a steady stream of through traffic, all moving in one direction, in the largest possible boats that could pass through the locks, going through every hour for twenty-four hours a day for the 190 days that the canal would certainly be open, would be about 42,000,000 tons a year. That is what I call the theoretical maximum capacity of the waterway, assuming ideal conditions and a steady stream of traffic moving through just as fast as the boats can go through.

I also asked what would be the capacity of an all-freight, double-track railroad, assuming that you had a steady stream of traffic moving east on one track and a steady stream of traffic moving west on the other track. I predicated it on a block signal system, with trains a mile and a half apart, 2,000 tons per train; I took twenty-four hours a day, 360 days for the year, and on that basis got a carrying capacity for an all-freight, double-track railroad, not of 42,000,000 tons merely, but of 420,000,000 tons, ten times the carrying capacity of the St. Lawrence Waterway. Of course that is a theoretical maximum, but it is figuring on the same basis that the capacity of a waterway is figured.

You could build three double-track, all-freight railroads between the Middle West and the Atlantic Seaboard for the cost of the St. Lawrence Waterway, and each of those three railroads would have a carrying capacity ten times the carrying capacity of the St. Lawrence Waterway.

In conclusion, I hope I may be permitted to say that as a former Chicagoan I am sorry that I cannot bring you a message of cheer with reference to the St. Lawrence Waterway. I have lived in this vicinity for the greater part of my life, and I know how we would like to have Chicago rival New York as a great entreport of commerce. We would like to be able to go down to the lake front and taste salt water, we would like to be able to smell the smells of the Orient, and we will never be quite happy until the flags of all nations have had a chance to unfurl themselves before Chicago breezes. But as a realistic objective economist I can only bring you the facts as careful analysis has revealed them; and I know enough about Chicago business men to know that they would very greatly prefer to have me bring them the actual results of our analysis, whatever the conclusions reached, than to bring them glittering generalities based upon our desires rather than upon our possibilities.

WHEN HORSE-TRADING SELLING METHODS SQUEEZE THE PROFITS OUT OF BIG BUSINESS [1]

CHARLES F. ABBOTT

Mr. Abbott, Executive Director of the American Institute of Steel Construction, Inc., presented this address at the third annual meeting of the Concrete Reinforcing Steel Institute, White Sulphur Springs, Mar. 21 to 23, 1917.

I venture to say that if I asked you gentlemen if your business is profitable, most of you would reply, "Not so profitable as it should be." No doubt, many of you could tell me stories of profits that have shrunk to the vanishing point, and even of actual losses.

I'll admit without argument that you would be fully justified in your complaint. Your business is not making the money that it should. How do I know? Well, for the simple reason that in recent years normal profits have been squeezed out of most businesses.

We all make the mistake of assuming that ours is the only business that is not making money. But others are faring as badly.

In proof of this statement, my friend, J. George Frederick, President of the Business Bourse, has compiled some figures which are startling. He shows that of the 417,421 corporations making tax returns to the Government for 1924, 181,032 made no profit at all and thousands of them registered deficits. Of the 236,389 concerns that did make a profit, a good percentage of them made just enough to get into the profit class. Their earnings were totally out of proportion to the capital investment in the enterprise.

To the business man who is losing money, there may seem to be small consolation in learning that hundreds of thousands of other business men are in the same boat. But that is not the way I look at it. It is a good thing for us to get a better perspective of business as a whole. In that way, we learn that the other fellow's pasture isn't any greener than our own. Knowing this, we will be better content to browse on our own spot of green, poor as it may be at the moment.

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[1] By permission of the author. Reprinted from the *Proceedings* of the Concrete Reinforcing Steel Institute.

When we know that our business neighbor is just as badly off as we are, perhaps we will be willing to buckle down to our present jobs and at least try to solve some of our industry's problems. One of the things that is wrong with industry is that business men are too inclined to give up and to tackle something else as soon as they strike a snag. They would not be so quick to change if they knew that they will strike the same snags wherever they go.

This is good advice for anyone connected with the steel business. We are in an industry that is especially unfortunate in the matter of profits. It is one of the three most important industries in the world, and yet the profits that are being made in it are not in proportion to its vitally fundamental character. We have no less an authority for this statement than Charles M. Schwab, Chairman of the Bethlehem Steel Corporation. Not long ago he stated, "The American steel industry has an investment of approximately five billion dollars and the industry as a whole is earning no more than five percent on this investment."

Less than a year ago Eugene G. Grace, President of the same corporation, in making his maiden speech before the American Iron and Steel Institute, said the steel industry must find a way to increase its earnings on invested capital. He continued, "In the motor industry, earnings run 10 to 15 percent on invested capital, or in some cases higher, but we, meanwhile, are earning only about 4 or 5 percent."

These facts are well known. There is no need to elaborate on them. The only thing that concerns us now is what we can do about them.

After all, this condition which exists in the steel industry is no mystery. It is the direct outcome of the methods of doing business that until recently have been employed in this giant industry. I say, "until recently," because in the last few years several divisions of the industry have taken steps to eliminate the abuses that have been handicapping the sale of steel.

Let us see if we can catalog some of the abuses. There are five principal ones:

First. There has been a lack of research. The steel industry has done practically nothing, in an organized way, to develop new uses for steel. Most of the important new uses for the commodity were initiated by the users. The automotive industry, for example, came to the steel industry and specified its requirements. And so did the manufacturers of steel railway coaches.

Second. Opportunities have not been followed up. Even when a new use was discovered, little was done to develop it. In other lines of business, as soon as a new way of using material is found, advertising is immediately employed to tell the world about it. For example, the Bakelite Corporation not only advertises to the many markets using its material, but it also uses advertising to scout for unknown uses. As a result of this policy, the company has succeeded in numerous instances in getting bakelite used in place of the following materials: wood, glass, amber, celluloid, fiber, rubber, shellac, gallalith, horn, ivory, jet, metal, paper, porcelain, rawhide, vegetable ivory, etc. That is an example of what research, followed up energetically by advertising, will do.

Third. There is the matter of too much inside competition. As distributors, we have been competing with ourselves and thus letting our real competition, the manufacturer of substitute materials, make unwarranted headway. Further, the steel producer has not always adhered to policies best calculated to enable steel to meet such competition from substitute products.

Fourth. There is the abuse that can best be described as topsy-turvy trade relations. Producers have been foolishly competing with the intermediate or distributing industries,—their best customers,—by going direct to the consumer and, in many instances, underselling the distributor.

Legitimate distributing factors in the steel industry have not received the protection that is given in practically every other line of business. For instance, so-called "desk brokers," with no capital invested in plant or equipment, have been given the same or more favorable recognition than is accorded the established distributors with heavy investments in their properties.

Equitable methods of sales and distribution must be adopted and adhered to, otherwise the distributors cannot be expected to function efficiently. Dissatisfaction and suspicion quickly breed destructive forms of competition. The distributing system becomes disorganized. The producer is then left with no alternative but to go direct to the consumer for the major part of his business. This is an expensive procedure, an unsatisfactory plan, and in the end a totally ineffective policy.

Efficiency demands a cooperative relationship between the producer and the distributor. They have a common interest, and, unless their problems are considered jointly, unless they are worked out through mutual understandings, these problems inevitably accumulate with all their attendant difficulties.

Distributors, of course, have their responsibilities to the producer, since he relies upon them for the proper distribution of his products. Distributors must be efficient, apply modern methods, and give the producer the sales volume he has a right to expect.

Failure on the part of the distributors to function properly would naturally invite the producer to disregard their interests and go direct to the consumer, or adopt any other policies essential to maintain the volume of business required to enable the producer to operate his plant on a profitable basis. Distributors cannot, and should not, overlook their own responsibilities, or fail to maintain high standards of selling efficiency.

Finally. We have with us, as the fifth and perhaps the most prevalent of all abuses, our horse-trading methods of selling. This situation is due primarily to a lack of a price policy. Steel has always been sold for what it will fetch, rather than for what it is worth or what it costs to produce.

It is to this fifth condition that I am going to devote myself largely in this address, for horse-trading methods of salesmanship are rampant throughout the industry.

I do not say this in criticism of the business. Horse-trading methods have prevailed in nearly all industries at one time. But the practice was long ago eliminated in most lines. The steel business has been slow in bringing itself to the standards of other industries—not because it didn't want to—but due to the lack of cooperation among steel interests it has seemed impossible to formulate any plan that would place the selling of steel on a better basis. The fact that the steel industry has now reached an era of cooperative endeavor will undoubtedly cure this abuse in time.

The first thing that we in the steel business must learn is how to arrive at a sales price. The formula is simple. A sales price is nothing more than the total cost of the product, plus a legitimate profit.

No doubt this method of pricing is recognized by everyone in the steel business, but in the process of making a sale it is too frequently ignored. If a plant needs business, and if it is thought that a competitor is making a lower price, the cost of production is forgotten, the need for making a profit is swept aside, and a bid is put in that is supposed to be low enough to get the order. That the order may lose the company getting it thousands of dollars, is not regarded as so important as the fact that all competition was beaten.

The steel industry cannot get away from the selling methods of the trader until it establishes the one-price system of doing business. The absence of such a policy is costing the steel industry millions of dollars annually. The practice of making bids that are below the cost of production is bad enough. Infinitely worse, however, is the custom of cutting the first price submitted and following with other revisions that make the price lower still. This is happening every day.

For instance, I know of a case where a prosperous contractor in a large city summoned to his office the lowest of ten bidders on a certain job. "Tom," opened the contractor, "you and I have been friends for many years. For this reason, I want you to get the order which I am about to place. The other bidders are strangers to me. But unfortunately, several of them are lower than you. Sharpen your pencil and see if you cannot get your price down within reason."

Tom expressed deep appreciation for the opportunity, finally dropping his price ten dollars a ton, and went away with an eight-hundred ton order, congratulating himself the while on what a wonderful salesman he was. Fortunately for his vanity, he never learned that he gave away $8,000 to a smart buyer who, after all, was the better salesman. Tom would have gotten the order without making the cut, as he was already the low man.

If that were an exceptional instance, it would not be worth mentioning, but unfortunately that sort of selling is altogether too common in the steel industry. I wonder what it is that prompts business men to disregard so utterly the very basis of business economics—the necessity of making a profit on every transaction. Anyone will admit that the continuous cutting of a price once submitted is a procedure based upon failure. It is a custom now as obsolete as Noah's Ark, and has no place among modern methods.

The establishment of a price is a complex matter which follows a law that must be obeyed. Unless men know how to add up total cost, and unless they add to this a sufficient profit, business cannot go on. The whole structure of trade is based upon profit, and not upon the exchange of goods.

To sell at cost or less than cost is not business. It is bankruptcy. Nothing is business that does not make a profit.

Constant cutting of prices once submitted deliberately educates the public to regard cheapness as the only inducement.

Total cost plus profit equals the sales price, is the only legitimate formula. Total cost minus profit, or practice shots plus guessing, leads directly to the door of the auctioneer.

According to the report of the House Committee on Agricultural Inquiry, which some few years ago tackled the problem of the high cost of living, not more than nine percent of American business men know the cost of their specific operations. Ninety-one percent cannot tell whether any part of their operations is self-supporting, or locate a possible hole through which the profits may be leaking away.

There are far too many men in business who see little, if any, practical value in cost accounting. They reason that they are just as well off as their competitors, and, anyway, it is up to them to meet the other fellow's price, cost accounting or no cost accounting. They will tell you that they must get the business, profit or no profit, and they proceed to establish their prices on a basis of trying to outguess what their competitors may quote.

This is a short-sighted argument to say the least. There is a vital relation between total cost and the selling price which cannot be worked out without cost accounting. Only as this relation is understood and put into practice, can the establishment of a sales price that will insure a profit, be realized. The general practice of disregarding cost is directed at getting the business away from a competitor and it fulfills no other function.

There is no influence as opposed to public welfare as business transacted on a basis of cost or less than cost. Just as bad, is the practice of pitting one bidder against another for the purpose of forcing lower prices. This is not only uneconomic, but it is also dishonest. Public interest is advanced when business is conducted on a basis of profit, and it suffers when profits are dissipated.

It was John Wanamaker and Marshall Field who made one of the greatest of all contributions to business when they advanced the idea of the one-price policy.

Before this innovation one could enter a store to purchase a suit of clothes and obtain a price of forty dollars, but if you were a good trader you could get the price down to perhaps twenty dollars. It was a custom that no one approved and when it was supplanted by the establishment of the one-price policy, with one price plainly marked on all merchandise, it received public endorsement. No one wishes to return to the days of the trader, or to establish buying and selling on a basis where one must outguess the other.

The greatest confidence is inspired when the buyer can feel assured that the seller's first price is his last price. Likewise buyers have the greater faith in the industry that is fair in its prices but firm in its policy. They quickly mistrust those that permit more than one price, or make concessions beyond the prevailing custom.

The National Association of Purchasing Agents has condemned any dishonest procedure in buying and especially the practice of unfairly forcing one seller against another to obtain cut prices. The Associated General Contractors of America have disapproved the practice of more than one price as they see the wisdom of the one-price policy.

In this connection, let me quote from a letter recently received from Mr. L. F. Boffey, Editor of *The Purchasing Agent,* the most widely circulated publication in its field:

> Every purchasing agent worthy of his title [says Mr. Boffey] will support a movement to eliminate price-haggling in industry. The one-price salesman who stands or falls on his original quotation is believed by the real purchasing agent. The tendency in buying today is to refuse to deal with the man who always has a price concession in reserve. There is nothing altruistic or holier-than-thou in this attitude of the buyer. It is simply a matter of self-protection on his part. The salesman who changes his quotation admits that his original figure was too high, and the purchasing agent is chary of dealing with him because he can never be sure that the last figure named is the rock-bottom price.
>
> In the final analysis, the salesman who has a price concession up his sleeve finds it hard to do business with the up-to-date buyer. He—the salesman—uses price as his major sales argument, and it is a poor argument. The buyer is concerned with price, of course. He wants to pay a reasonable profit, and no more than a reasonable profit, to his sources of supply. The engineering and statistical information at the command of the present-day buyer enable him to judge values and to frown alike on the would-be profiteer and the optimistic seller who cuts prices below a reasonable profit in the hope that he can "make it up somewhere."
>
> What the buyer seeks is lowest cost per unit of service in the goods he buys. The salesman who makes an intensive and intelligent study of the buyer's problems, so as to determine how his—the seller's—products can be advantageously used by the buyer, is more successful in selling today than the man who figures that an extra "five percent off" will be the sole influence in awarding an order.

On the same subject, W. L. Chandler, Secretary, National Association of Purchasing Agents, Inc., has written me, as an expression of his personal opinion, a letter in which he says, "I feel satisfied that, on the whole, our members prefer to have a man quote his best price first and stand by his guns."

J. L. Leonard, Executive Secretary, Purchasing Agents' Association of New York, writes:

> The soundest and safest policy for a salesman is to quote rock bottom at the very beginning. Our members and all purchasing agents, prefer to do business with one priced houses. . . . I know of salesmen who, in spite of offering a lower second price which might represent the lowest of a group of bids from various companies, have lost an order because of such tactics. The policy of some salesmen of having an asking price which will be revised under pressure, is a waste of time, both to the purchasing agent and the salesman.

Advertising has helped manufacturers in most lines to put over the one price policy. As soon as a product is advertised and begins to stand for something in the minds of the buying public, the article in question is taken out of the price competitive class. To be sure, it still has to contend with competition, but not on the same basis as it did before. The unadvertised article is on a level with all competing products. There is not much to distinguish one from another, except price.

But the salesman of an advertised product is up against no such difficulty. Let us assume that he is selling baking powder. He is in the act of negotiating for an order, when the retailer exclaims, "Your price is too high. I can buy baking power for a half that price."

"To be sure, you can," calmly replies the salesman. "But you cannot buy Royal Baking Powder for any less than the price I quoted you. No one makes Royal Baking Powder except the Royal Baking Powder Co. It is a high-priced powder, but it is high-priced because it is worth it. We have built up one of the largest businesses of its kind in the world, simply because the public wants Royal. The price is not an issue in the matter at all. Your customers want Royal, etc."

Thousands of products are sold in that way. Through advertising and intelligent salesmanship, manufacturers invest their products with utility and quality that make people want them, despite the price. Floor coverings are offered as a means of beautifying a room. People are told of the many delicious breads, cakes and pastry that they can make with flour. The wholesomeness of certain ginger ales, root beers, and other drinks are pictured in irresistible fashion. The comfort and pleasure of using certain shaving creams is advertised so appealingly that price is never even discussed.

I could stand here for several hours and cite instances of this kind, but it is not necessary. It is generally recognized that it is selling of this sort that has made the United States the greatest business country in the world.

Perhaps you are willing to admit that most products can be sold that way, but that the line you are in, and, in fact, the entire steel business, is different. Well, I cannot grant you that exception. The steel business does not lack selling opportunities. In fact, it is more fortunate in its sales arguments than are most businesses. But the trouble is that those in the business rarely use these arguments. They talk only price. The practicability, utility, durability, and adaptability of steel is one of the most forceful sales stories in the world, but how seldom those in the industry employ it.

You might come back at me at this point with this remark: "A steel order is usually sought through a sealed bid. Each company making a bid is asked to supply a standard product to fit certain detailed specifications. All that is asked for is a price. Each bidder is supposed to be bidding on the same product as every other bidder. What chance is there for selling under such a condition?"

In answering that question, I am going to tell you about the printing business. As far as the mechanics of selling is concerned, the printing business parallels the steel business in several respects. Printing is bought largely through written proposals. When a company wants some printing, it asks several printers to send in bids. In the old days, printers were so hungry for business, that some of them were always ready to take a job below the cost of production.

In recent years, the association of employing printers worked out an elaborate cost system. This system is now in general use. Today, when a printer is asked to give an estimate on a job, his proposal will embrace the cost of production plus a profit. This does not mean that all printers will turn in the same proposal. The estimates on a job will usually vary from ten to twenty percent between the lowest bidder and the highest bidder. This is because conditions in different shops vary, and because some printers are willing to accept less profit than others. Anyway, the use of the cost accounting system in this industry has, to a great extent, eliminated the demoralizing cut-price competition that used to prevail.

Another thing about the printing business is significant. The lowest bidder does not always get the business. Salesmanship has been carried to such a degree that the highest bidder frequently goes away with the order.

The salesman so effectively presents the superior facilities of his shop, his company's experience in handling that type of business, and other advantages that he has at his command, that he gets the order notwithstanding his price. In fact, frequently he so thoroughly sells his organization that he gets all of a particular buyer's printing business, without having to submit bids.

The steel business could use that same type of salesmanship. The experience that a company has had in handling certain work, its ability to get orders out on time, some famous structures in which its product is used, are only a few of the many arguments that could be used by steel salesmen to get buyers thinking of something else besides price.

If it is true that buyers have been deliberately educated to consider price as the only controlling factor, we must now devote our energies to undermining what has been accomplished, and to emphasizing the other considerations that should be of even greater importance to the buyer who wishes to be guided by all the factors that influence investment value and economy.

Steel salesmen should use their imaginations to picture the service that their product is going to render when it is in use. Take a bridge, for instance. I do not imagine that I am disclosing a secret when I say that most of our great bridges are sold at near cost or at a loss. Let us consider, for a moment, the Bear Mountain Bridge, or the mighty steel span connecting Philadelphia and Camden. The economic importance of these bridges is simply incalculable. These structures will serve billions of persons; yet the companies who supply the material that make the bridges of this type possible, although they assume great risks, make very little, if any, profit. Can you think of any greater absurdity?

Manufacturers outside of the steel industry, who use steel in making their products, are not so backward in stressing the advantages of steel. There are at least fifty national advertisers today who are featuring steel in their copy. As I was preparing this address, I picked up a copy of the *Saturday Evening Post,* issue of March fifth. The very first advertisement that I saw in that issue was that of a bolt and nut manufacturer whose page is headed, "A Miracle of Steel." This manufacturer bases his whole selling appeal on steel.

If those, outside of our industry, find it to their advantage to capitalize the qualities of steel, how much more should it be to our advantage to emphasize all the qualities of our own product?

Of course, it is not possible for any industry to use the kind of selling I have been advocating and to practice the one-price policy, unless it is solidly united. By this I do not mean that the industry should unite to control or to fix prices. This is illegal, and cannot be done. There is no reason, however, why an industry cannot get together to formulate a cost accounting system and to agree to base its prices on the formula of cost plus profit.

There is also no reason why any industry cannot agree to respect the rights of all legitimate factors in the industry. Distributors should be protected. Producers should stop competing with and undermining their own distributors. In a word, an industry cannot get itself onto a profitable basis until it is fair, not only with its competitors, but with all the factors in the trade.

An industry cannot be profitable until producers and distributors unite in constructive cooperation to meet all problems confronting the industry. Take the problem of foreign steel. This is rapidly becoming a question that the steel industry of this country must solve.

During 1925, there were imported approximately sixty-six thousand tons of steel bars and eighty-six thousand tons of structural steel shapes and building forms. During 1926 imports were approximately one hundred seventeen thousand tons of steel bars and one hundred thirty-six thousand tons of structural steel shapes and building forms. The increase shown is a considerable one, although the quantity may not yet be sufficient to cause any concern on the part of the American producers. Apparently that is why they seem indifferent to the problem.

I had the pleasure of attending a recent conference where the question of foreign reinforcing steel was up for consideration. It seemed that a few jobbers were offering for sale foreign material at considerably lower prices than market quotations on domestic material, while the majority were anxious to confine all sales to American made steel.

The principal difficulty was with the few who cared little for sentiment or who attached any importance to the question of quality. Their interest was confined to immediate sales and profits.

Lower prices offered an attractive inducement and sales were increasing, while those loyal to the superior quality of the American product were suffering a loss of business that they admitted they could not afford to lose.

Appeals had been made to the American producers without any assurances that they could relieve the situation or offer any suggestions that might encourage a policy to remain firm and feature American made steel.

The following suggestion was submitted as offering a possible solution:

First. Place all sales emphasis on American made steel, not because of sentimental reasons, but because of a more dependable uniform quality and service. The future of the industry could best be insured by eliminating all elements of chance.

Second. Put in stock a limited supply of foreign material to be used as a medium to force sales of American steel.

Third. If, after exerting every effort to sell the domestic product, utilizing every selling inducement, the customer still was influenced by the lower price, then accept the order and thereby prevent a loss of business.

This plan would, however, result in the customer purchasing the domestic steel in most cases. It would afford the means by which fire could be fought with fire, instead of standing pat on American steel with no comeback with which to reinforce the position.

This is a logical practical plan by which competition with foreign steel can be met and overcome without losing business in pursuing a too conservative policy.

Work with the customer, appeal to his reason, to his business judgment, but, in failing to register, then give him what he wants and at the same time make him understand what he is getting in return for the lower price.

Perhaps I have been doing a lot of prescribing in this address. Well, I have not been prescribing anything that the division of the steel industry with which I am associated is not willing to follow. We are taking the medicine which I have been prescribing for others. In various addresses during the last four years, I have told of the work which we are doing. Our latest undertaking is advertising. This advertising is in three different types of media—those reaching the consuming public, those reaching architects, and those reaching engineers, contractors, public officials, the metal trades, etc.

The purpose of this advertising can be best stated by citing our creed. It is:

> The structural steel industry is not merely a group of fabricators whose interest in steel ends with its fabrication, sale and erection; for the fabricator's true responsibility is discharged only when his product has been honestly produced, intelligently marketed, and economically used.

The American Institute of Steel Construction believes enough in steel to want to tell the world about it. Through advertising, we hope to invest structural steel with qualities in the minds of buyers that will lift it out of the competitive class to which it has long been subject. We realize that the advertised business is today the only business that can get away from undesirable competitive selling.

The advertised business also runs a greater chance of being able to make a profit. You will recall that, at the beginning, I cited some figures compiled by J. George Frederick. A significant thing about these figures is that the majority of the 236,389 concerns making a profit in 1924 are in lines that are well advertised, or in lines where the one price system of selling prevails.

THE MANUFACTURERS' PROBLEM IN DISTRIBUTION[1]

SAUNDERS NORVELL

Mr. Norvell, President of Remington Arms Company, Inc., made this address before the American Hardware Manufacturers' Association Convention at Atlantic City, Oct. 18, 1928.

On the program this afternoon we have three speakers on the general subject of distribution. One represents the jobbers, another the retailers, and the present speaker, the manufacturers.

There are many problems in distribution before the manufacturers today that might be discussed profitably, but there is one problem just at this time that is most prominent in the minds of the manufacturers, jobbers and retailers, and that problem is the competition of the jobbing trade and the independent retailers with mail-order house and chain store methods of distribution. This is the one and only problem that I will attempt to discuss today.

I trust you will see that in the following remarks I am confining myself closely to general principles and leaving out details and personalities. In this discussion I am not referring to any one line of business. I wish it understood that I have no personal quarrel with mail-order houses or chain stores. As a matter of fact, a number of the gentlemen connected with these concerns have been for a number of years personal friends of mine. It will be my object to lay down the principles of this competition so clearly that even the most thoughtless can see the points involved.

When a game of cards is played, the game is governed by a set of fixed rules. The object of these rules is to give an equal and fair opportunity to each player, without any advantage to any. Playing under such conditions, in the long run, the skilled players will always win. The object of the game is to develop skill.

Now, suppose a game is arranged in which one of the players is given an advantage in the outset of 20 or 30 per cent in points on every deal. *What kind of a game would you call that?* What sensible person, unless they had a case of paranoic optimism, would sit in such a game and expect to win? It would certainly take a very skilled player to overcome such a handicap. The retail merchant under present conditions on many lines of goods, when he takes a hand in the game with the mail-order houses and chain stores is handicapped right at the start by the one great disadvantage that his competitors are buying their goods direct from the manufacturers at 20 or 30 per cent less than he is obtaining the same goods from jobbers. Such a handicap, if continued, will, of course, eventually put the independent retailer out of the game. With the retailer, eventually, will go the jobber.

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[1] By permission of the author. Reprinted from *Hardware Age* for Oct. 18, 1928.

Mail-order houses have frankly laid down the principle that in order to sell goods and increase their sales, they must cut prices. One mail-order house not only asserted to a manufacturer that they must cut prices but they informed this manufacturer that unless he sold them his brand of goods they proposed to go out into the market, buy his goods from third parties and sell the goods regardless of cost. This representative of the mail-order house stated that *this was the policy of his house,* and that they found it necessary and advisable to use this power to whip the manufacturers into line.

Under their old system of selling from one headquarters, the manufacturers submitted to their lines being cut by the mail-order houses, because by that system it was necessary for the consumer to write up his order on his own time from the catalog of the mail-order house, to buy a post-office order, to mail this order, to wait for the goods and finally to pay express charges. Under this old system of the mail-order houses, when the cut in the price of the goods was not too deep, very little damage was done. *This cut in price on the part of the mail-order house simply equalized the difference in service.*

But, under the new system of the mail-order houses of having their retail chain stores, the entire problem is changed. Goods are sold in these stores over the counter at the cut prices quoted in the catalogs. Therefore the independent retailers are face to face with service exactly the same as theirs, and in addition a heavy reduction in prices, a reduction in prices that in many cases the retailer cannot meet if he buys his goods at the established jobbers' prices.

Such being the facts, the entire problem, as far as the manufacturer, the jobber and the retailer are concerned, has completely changed. The manufacturer today who sells the mail-order houses at the same price he sells the jobber—in other words, at a price 20 or 30 per cent lower than the price at which the independent retailer is buying—is giving the mail-order houses an advantage on his lines that, if used to its logical conclusion, will wipe out first the retailer and then the jobber.

In the majority of cases securely established manufacturers of well-known lines, who have been in business for many years, have built up their business with the assistance of jobbers and retailers. The larger part of the goods they produce have been sold, *and are still being sold,* through these jobbers and retailers. In the case of the leading manufacturers of the country in the hardware, cutlery and sporting goods line, probably not 5 per cent of their total volume has been sold in the past by mail-order houses.

The fact is recognized that the great damage done by mail-order houses to business is not so much in the actual sales they make, but in the general demoralization of prices caused by the distribution of their catalogs. These catalogs, with their cut prices, break down established profits, and if the facts could be gathered it would be found that retailers are forced to sell goods in many lines on an unreasonable and unsatisfactory basis of profit, because of the wide distribution of cut prices in these catalogs.

Let me again impress upon you the fact that, in my opinion, the whole trouble is caused not by reason of the fact that manufacturers sell to mail-order houses, but by reason of the fact that they sell them at jobbers' prices, at very much lower prices than the retailers can obtain the same goods, and that this price advantage puts the mail-order house in a position to carry out their policy of using well-known brands as baits or leaders to draw the buyer into the stores. The great mass of buyers are only posted on the prices of certain well-known brands. If they can buy these brands at much lower prices in the retail stores of the mail-order houses, their natural conclusion is that they can buy other goods on the same basis, and this one point is the reason why mail-order houses are so determined and insistent in obtaining well-known nationally advertised goods at any expense in order to offer them at bargain prices in their stores.

Take goods the sale of which is not growing by reason of well-known conditions. I could name a number of such lines. All of us know that the total volume of sales of such goods no matter what is done will not increase very much from year to year. The volume of sales on these lines is practically at a standstill. Neither the mail-order houses by their efforts, nor the jobbers and the retailers by their efforts, can very largely increase the sale of such goods. One would therefore conclude that if this condition prevailed in a line and if these goods were being sold satisfactorily by the jobbers and the retailers of the country, that the manufacturers would have no desire or any object in changing their methods of distribution. Why, you might reasonably ask, should a manufacturer, who distributes 95 per cent of his goods through the jobbing and retail trade, offer the mail-order houses his lowest jobbing price, and then sit by and see the mail-order house simply shift the business away from retailers and jobbers into their own cash drawers? Why, you might naturally ask, should a manufacturer do this?

The answer is so simple that it is hardly believable. In practically all lines of goods there is keen competition for volume. The large immediate orders offered by the mail-order houses are attractive bait. The manufacturer who makes such a deal with a mail-order house is suffering under the delusion that he can take on this large business *in addition* to his business with the jobbers and the retailers, and also take so much more business away from his competitors *and get away with it.* I have studied this problem deeply and that is the only object that I can see why a manufacturer, with a well established business with jobbers and retailers, should offer these very low prices to mail-order houses and take on their business.

I might go still further and express the opinion that possibly this manufacturer thinks that the jobbers are so badly disorganized, that there is so little cooperation between them, and that the retailers of the country are so submissive to unfavorable conditions and so unintelligent in studying out these problems, that he can get away with both methods of distribution, i. e., through jobbers and retailers and also through mail-order houses; increase the volume of his sales and then laugh at the other manufacturers who are so out of date, so unmodern as to think they can keep up their volume by confining their sales strictly to the jobbing and the retail avenues of distribution.

There is also another thought in the minds of some manufacturers, and that is that the jobbers, as a class, are becoming so weakened by this new competition that in the course of a few years they will pass away. Certain manufacturers have told me that they believed this to be true. They have stated that in their opinion the system of selling through jobbers to retailers to consumers was so cumbersome and so loaded up by a double profit and expenses that that system would not survive as compared with the one profit system of the chain stores. Therefore I have said to such manufacturers, *"Because you have lost faith in the jobber and retail system of distribution, you are willing to hurry the end of jobbers* and retailers of the country, giving the mail-order houses an advantage of 20 to 30 per cent on your goods?"

Again, you see, I get back to that differential in price, because, in my opinion, that is the crux of the whole situation.

What is the answer to this problem? Some have said, "Allow the manufacturer who wishes to sell the mail-order houses to continue to sell them. Put the jobber and the retailer in a position to meet their cut prices. If the mail-order house was cutting their goods 10 per cent, this would mean a cut on the part of the manufacturer to the jobber of 10 per cent and a cut on the part of the jobber to the retailer of 10 per cent, and then everybody would be on the same basis, and then the game could go on with the same rules for all."

To this, one manufacturer answers: "While I might be able to make a cut on one or two accounts in order to secure a large quantity of business, I could not afford to make a cut of 10 per cent *on my entire business*. If I did that, I would be selling my goods at less than cost. Such a plan is impracticable."

Another manufacturer would say, "All right; suppose I could afford such a cut. Suppose I place the jobbers and the retailers in a position to meet the prices of the mail-order houses, then the mail-order houses carrying out their avowed policy *would cut their prices again,* and after cutting my prices to my jobbing and retail customers I would be no better off than before, *and neither would the jobbers or the retailers.*"

So, what is the answer? To my mind, the answer is just as simple as it can be. Legally all of us have the right to buy from whom we please and to sell to whom we please. In other words, we can take a seat at the game where the cards are stacked, where the percentage is against us, or we can smile and beg to be excused from sitting in at that particular game and with that particular manufacturer and his line of goods. This, on the face of it, seems self-evident. If a manufacturer sold the larger part of his goods through jobbers and retailers, and he was faced with a loss of his business, he would quickly arrange his sales policy on the side where his larger volume lay.

But, then, something else happens! There are certain jobbers who can be persuaded, for an extra consideration, to continue to sell any line. *With some people, an extra 5 per cent is a potent sales argument, regardless of all other considerations*. Then there are retailers who are just as susceptible to this same argument, so the price argument is used in those places where it will do the most good, while the intelligent thinkers of the country wonder at the seemingly unusual and illogical conditions.

There is just another angle to this problem before I close. Mail-order houses, chain stores and large retail sellers generally are very strong for the Sherman law and the Clayton act. We are informed that when the resale price problem was voted on by the National Chamber of Commerce, it was defeated by this class of sellers. A price maintenance law would defeat their sales policies.

But let us look at this matter from this angle: Suppose a manufacturer refused to sell these mail-order houses. Suppose he advised them to discontinue showing and pricing his goods in their catalogs. Suppose, not withstanding this request on his part, the mail-order houses bought the goods through third parties. Then suppose they offered the goods, as they have threatened to do, at prices at cost or less than cost in their catalogs. This manufacturer, having sold his goods at his own prices to his selected customers, legally, would have no redress, but the customer of this manufacturer, who might happen to be a retail dealer, has lost his business on this line and has lost his profits by reason of this kind of competition. Let me here ask if this retailer should bring suit for damages; if he would not have certain rights that should be recognized? Let me ask if this retailer, or a group of retailers, should appeal, either individually or collectively, to the Federal Trade Commission against this kind of competition, would not they be heard? It is a poor rule that does not work both ways. The Sherman law was passed to prevent monopoly and extortion. Is the law to be used as a weapon by powerful corporations to annihilate their weaker competitors? Public opinion is rapidly changing on this phase of the question.

Now, in conclusion, here is something for hardware manufacturers to think about. In the drug business, manufacturers' giving unfair advantages to chain stores and mail-order houses has led to a startling situation. A large number of wholesale drug houses of the country, a chain extending from the Atlantic to the Pacific Ocean and from Canada to the Gulf of Mexico, have formed an amalgamation with each other and with a large manufacturer of drugs and chemicals. What was the cause of this amalgamation? These wholesalers, made desperate by subsidized chain store competition, have determined to buy their goods on such a basis as to be able to place their customers in a position to meet chain store cut prices and to sell brands that cannot be obtained by chain stores. They are now consolidating their orders in all lines. As their combined sales amount to about $75,000,000 per annum, their orders are very heavy. They are establishing a buying office in New York and are scouring the markets not only of the United States but throughout the world, in order to obtain goods at the lowest possible prices. Naturally, this situation has been quite a shock to a good many easy-going drug and chemical manufacturers, who thought they could get away with their plan of selling the mail-order houses and chain stores, and also the jobbers.

The sales problem of these manufacturers will not be as simple in the future as it has been in the past. They can only blame themselves for this new situation. The handwriting was on the wall, but they did not take the time and trouble to read it.

THE ECONOMICS OF INDUSTRIAL ADVERTISING[1]

JESSE H. NEAL

Mr. Neal, Executive Secretary of the Associated Business Papers, Inc., and Secretary-treasurer of the Associated Advertising Clubs of the World, delivered this address before the Industrial Advertisers' Association, Atlantic City, June, 1923. Various publishers and advertising companies have circulated over 75,000 copies.

"The Economics of Industrial Advertising" sounds appallingly serious and heavy, rather indigestible coming so soon after one of the bountiful American Plan breakfasts they serve here in Atlantic City.

And in truth, to cover all of the processes and functions of industrial advertising embraced in such a broad subject, would furnish the filling for a 500-page, gilt-edged, leather-covered mausoleum, and if I should attempt such an opus magnum here, it would serve my widow right for tying up to such a fool-hardy man.

So be not alarmed—my sympathies are all with the audience. Moreover, I have been an advertising manager myself in an industrial concern, have heard the big boss say, "Business is booming—we certainly have a fine lot of salesmen on the road." I have seen the sales manager called to account for a decrease in business, and heard him chant the famous alibi ballad—"There must be something the matter with our advertising."

But speaking of Economics—I feel like a man bringing bread to a baker, before an audience which truly is the flower of the profession in its division of advertising. I do not expect you to accept what I have to say as authoritative, but to regard it as the humble contribution of a man whose only claim to your attention is the advantage of perspective which he has enjoyed for several years.

ADVERTISING NOT AN EXACT SCIENCE

To begin with, let me hazard the assertion that there never will be an exact science of advertising and selling, such as we have in astronomy, mathematics, physics and chemistry. The factors with which we deal are too variable, involving as they do all the complexities of human impulses and emotions. But thank goodness we have outgrown the stage when advertising was regarded as a species of legerdemain, and the advertising manager as a refined fakir, a combination of soothsayer, artist, and hack writer—in fact as the chauffeur of the advertising Ouija board. We recognize now, the need for a knowledge of fundamental laws, for a sound basis of classified experience, for market analysis and research, and for the trained and expert judgment which will enable us to make intelligent decisions. The day of clairvoyance and the lucky hunch has passed forever from the ken of men engaged in industrial advertising.

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[1] By permission of the author.

Importance of Advertising from Industry to Industry

The organization of the Industrial Advertisers' Association was a step of greater significance than perhaps some of you realize. It represented to me at least the dawn of the recognition to which you men are entitled.

Let me illustrate my meaning with the help of a piece of chalk and this blackboard.—

The lower section represents the final sale of any product to an individual consumer, such as this handkerchief here, and the antecedent sales by a manufacturer to a jobber and by the jobber to the retailer.

Practically all of the current literature and books on advertising have been written about and around these transactions. Seldom if ever, has anyone gone back of these factors, and never until it was presented in a piece of our printed matter, have I seen all the limbs placed on the genealogical tree.

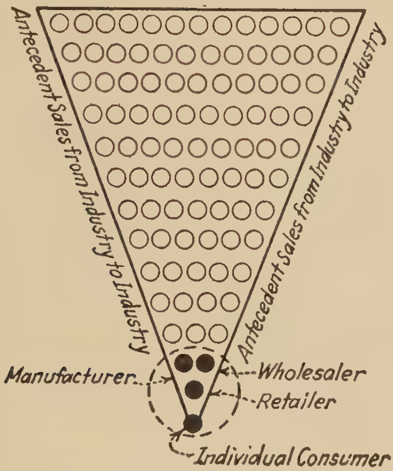
Take this cotton handkerchief as an example:—Consider the sales and manufacturing processes which lie back of the sale which the retailer made to me.

To make the retail store there had to be building materials, and interior equipment of all kinds, and of course this applies also to the jobber.

The manufacturer has to buy raw materials, machinery, office supplies, power, motor trucks, fuel, elevators; perhaps he has a plant hospital and a restaurant.

Then we get back to the textile mill which wove the fabric. It had to buy the raw cotton, buildings, an immense amount of machinery and factory equipment, and all the other innumerable appurtenances of such a plant.

Going back a step further we come to the ginning mill requiring


Antecedent Sales from Industry to Industry
Antecedent Sales from Industry to Industry
Antecedent Sales from Industry to Industry
Manufacturer
Wholesaler
Retailer
Individual Consumer

NOTE: The solid black circles embraced within the dotted line, represent the sales and advertising transactions upon which the advertising world has focused most of its thinking, writing and talking.

The light circles represent the many antecedent sales from industry to industry which must take place before there can be any movement of goods from manufacturer, wholesaler and retailer to the individual consumer.

Each one of the light circles is the point of a similar inverted pyramid of antecedent sales, and all of these transactions go back finally to the original sources such as the field, the forest, and the mine.

more machinery, more power, and more equipment. From the ginning mill to the cotton grower who buys buildings, fences, agricultural machinery, fertilizer, insecticides, live stock, vehicles, tractors, trucks, etc.

We haven't mentioned the railroad at all, which is involved in each one of these steps and you all know the material and equipment it takes to run a railroad.

Now get this—each one of the producers mentioned as a direct ancestor of the handkerchief is the point of a similar inverted pyramid of antecedent sales.

So back of this movement down here at the lower point, from manufacturer to jobber to retailer to consumer, there are perhaps a hundred or more movements from industry to industry.

The sales and advertising costs of the finished article are therefore compounded of the aggregate costs of all of these movements of goods from industry to industry. The whole is equal to the sum of its parts.

Even with this rough demonstration, does not industrial advertising begin to loom rather large as a tremendously important factor in the distributive process? I think I begin to see it overshadowing in a few years these two or three final sales down here at the lower point of the inverted pyramid about which we have talked and heard so much.

Opportunity in Industrial Advertising

Do you not see that there are 50 to 100 chances for the application of advertising as a lubricant and a stimulant all through industry to every one opportunity down here at this lower point?

This is why I confidently assert that the largest opportunity for advertising and advertising men in years to come will be found in what you call "industrial advertising." Its importance cannot be overestimated.

Did you ever stand on Fifth Avenue in New York and watch the movement of traffic? If so, you have seen the beautiful bronze signal towers all displaying the same signals from Washington Square to Central Park, and you could not have failed to be moved by the impressive sight of a solid, unbroken stream of vehicles moving as a unit over three miles of that famous street.

I look forward to the time when merchandise will flow in a steady, unbroken stream from its source through all the steps traced in this diagram, with an alert, keen brained, industrial advertising manager at each intersection to line up and synchronize the signals of successful advertising.

Distribution Costs Must Be Lowered

Right now, Production has thrown down the gauntlet to Distribution. The Hon. Sydney Anderson, who made that wonderful survey of distribution costs, states that but to 10 to 17 cents of the consumer's dollar, on a rough average, represents the cost of manufacture, and he is quite certain that the cost of production and manufacture together, is less than the total cost of selling, transportation and delivery. In plain words it costs more to sell goods than it does to produce them.

Every now and then some soap-box economist breaks out with a sensational tirade against the high cost of advertising, claiming that it is adding to the cost of living without adding anything to the value of the goods. Too many business men are luke-warm and indifferent about their advertising. It is a challenge we must meet, not with high sounding platitudes but with definite achievement and sound educational effort to gain for advertising a fair chance to demonstrate its rightful place in the scheme of distribution.

It is not unusual for manufacturers to go out after sales volume at a comparatively high cost in order to get factory volume and thus reduce production costs. Perhaps this may be justifiable, but when advertising is used for such a purpose it has to stand the blame.

As you well know, large volume reduces factory costs because it enables large scale operations without a corresponding increase in labor and overhead. Why should labor and overhead in *selling* not be subject to the same laws?

In manufacturing, it is considered stupid and wasteful to do anything by hand which can be done by machinery. The efficiency of the individual is multiplied manyfold.

For instance, in England the mechanical horse power per worker is 1.5 whereas in the United States it is 3.25, and the average output per man in this country is nearly three times as much as in England, and our men are the more highly paid for their work.

Let me right here digress long enough to claim a fair share of the credit for these superior conditions in this country, for industrial advertising and business journalism. English business men are conservative and as compared with the United States there is a marked reluctance in England to the sharing of the knowledge of improved methods with others. Neither does England possess an industrial press comparable with ours in either numbers or quality of service.

American industrial papers have helped mightily in breaking down the barrier of distrust and selfishness and have constituted a clearing house for advanced ideas and improved processes. Through having a common source of information and inspiration whole industries have been enabled to advance almost as a unit. It is more than a coincidence that we lead the world in industrial advertising and journalism.

Improved machinery and processes do not get into factories by accident. They were put there in many cases through the aid of good advertising. So I say that industrial advertising deserves a good share of the credit for lower *production* costs. It should not be judged wholly by what it does for distribution. I could quote case after case by way of proof, but you know them as well as I do.

Advertising is the machinery of distribution and should take the same place in mass marketing that machinery takes in mass production, but even a machine can be uneconomical if improperly operated or if it is not worked in harmony with all of the processes involved in completing the operation.

Let me emphasize, therefore, the need for a thorough understanding of the *tools* with which we have to work, the advertising mediums by whatever name they are called.

Must Know the Tools of Advertising

Even poor copy will produce some results if placed in the right media—if it gets to the right people under the right conditions. I would rather have a 6-inch advertisement for a Chicago store in the *Chicago Tribune,* than two pages in the *Philadelphia Ledger*. The large advertisement might be better written but it would be a total loss, because it would be in the wrong medium.

The great bulk of the water which flows over Niagara Falls, is simply the scenery in a stupendous spectacle of nature. Another part of the water, a very small part comparatively, passes through turbines which turn a thousand wheels in useful industry. It is precisely the same water, but it passes through a different medium.

Power of any kind must pass through the right medium, before it becomes available for human needs. A quart of gasoline in a motor truck will move a ten ton load—burned in the open air it creates nothing but a bad smell.

Sound is not sound until it reaches human ears, and the best copy you can write will remain just paper and ink until it gets behind the cranial dome of a real buyer.

A craftsman is no better than his tools. Imagine a watchmaker trying to work with a machinist's hammer and a cold chisel. We are not more intelligent than our ancestors, but we have incomparably better tools. We have the finished machinery of civilization.

The mathematics and theory of engineering have not changed materially in many years, but the *tools* have. Think what the introduction of the steam shovel meant, yet the method of estimating the material to be excavated, the principles remain the same.

Take out of the world steam power, electricity, the gas engine, agricultural machinery, the cotton gin, etc., and the world would soon revert to the conditions of life which prevailed 100 years ago.

And in fact if we were to wipe out all our highly specialized mediums of advertising we would put advertising back where commerce was before the advent of railroads.

So I have ventured to enunciate as a law—

The advertiser's power of expression is limited by his means of expression.

Part of the waste in distribution can be attributed to an inadequate knowledge of the tools and machinery of advertising. Some advertisers try to do everything with one tool. Their excuse is that they get results.

I have heard of a duffer who plays an entire game of golf with a niblick because he does not know how to use the other clubs. He gets around the course all right, but oh gosh, the score!

You can't build a house with a hammer and you can't conduct a well rounded advertising campaign with one kind of advertising, and this is no reflection on any class of medium. Each medium has its place and its own function. The waste comes when we use the wrong medium, when we try to make a screw driver take the place of a cross cut saw.

Here is what the *Chicago Daily News* had to say about it in one of their own advertisements:

> Perhaps coal miners ought really to powder their noses and look pretty, but we doubt if you would advertise powder puffs in Coal Age, any more than you would picks and shovels in Vanity Fair.

Absurd, ridiculous, impossible, of course; but how about advertisers who judging by the mediums used, are trying to sell 5-ton trucks to clergymen, traveling cranes to Vassar undergraduates, leather belting to stock brokers, and concrete mixers to chamber maids.

Advertisers of this type cannot be fishermen, because any fisherman knows that trout are caught with a special rod, bait suited to the season and the locality, skillful handling of the tackle, and that the fishing is done in *trout* streams, not on the Grand Banks.

There isn't time to go into all of the factors affecting the selection of mediums, but I will take a few minutes to present what I consider the outstanding essential in appraising the value of a publication for your special purpose.

The Nature of the Contact All-Important

It is the fundamental principle which underlies the peculiar value of all publications of whatever nature. It is not, how many readers are "reached," but *how* are they reached. Everything hinges upon the *nature of the contact* effected.

If this were not true you could send out messenger boys instead of salesmen to speak a piece to each prospect. Why then send out salesmen? Because a salesman is something more than flesh and blood, just as a publication is something more than paper and ink. What would you think of a salesman who came in to report that he had "reached" 40 prospects in one day? Probably you would remark that you didn't care how many doors he had knocked on, but you would like to know what was the nature of the contact.

President Harding is reached by all the servants around the White House, yet if you really wanted to influence the President, would you select the major-domo to carry your message? The President is "reached" by him several times a day. Or would you select the Secretary of State who sees him perhaps but twice a week? Some difference in the nature of the contact, is there not?

I seek the advice of a garage mechanic on my carburetor, but would not look to him for advice on my teeth nor respect it if volunteered. Likewise, a man's attitude towards a publication depends upon his respect for its authority. We accept its advice on one subject and disregard it on another.

If you ask me for a definition I would say—"A publication is a piece of paper and ink *plus* its editorial value, its character, personality, standing with the readers and general reputation." Its advertising value over and above a piece of printed matter will be proportional to the *plus* elements.

If I were buying space (and I have bought a lot of it) I would ask myself—(1) Is the paper essential to its field? (2) What is the evidence of *reader interest?* (3) Is the reader interest *proven* by voluntary paid subscriptions? (4) Are the paid subscriptions audited by the A. B. C.? (5) Is the *character* of the paper verified by membership in the Associated Business Papers?

Once we get this important principle of the nature of the contact clear in our minds, we can buy space surely, confidently and profitably.

The other night I sat in the private study of a New York man who manages 30 power plants. On his library table was a pile of periodicals which upon examination proved to be copies for six months back of a certain power plant paper. He did not know my business, so I asked if he found that paper of any interest or value. To my surprise his wife broke in and vociferated feelingly—"I should say he does; whenever a new number arrives, he is glued to it for several nights, although for the life of me I can't see what he finds in them. I have to hide 'em to get any attention for myself." The husband smiled indulgently and told me that there was scarcely a machine or a piece of material in any of his 30 plants, whose selection had not been influenced to some extent by the text matter and advertising in that paper. He turned the pages of the last number and discoursed with understanding and real enthusiasm upon everything in it. The room was filled with other kinds of periodicals—he was "reached" by them just as his wife was "reached" by the power plant paper, but what would you say was the wide open channel to that man's mind?

Buying impulses are motivated by interest, and where can you find this essential factor of interest in such volume or intensity as in specialized papers going to specialized groups of readers?

Advertising must follow the lines of personal selling. It must be aimed and directed at the massed buying power, and nowhere else. You know the advantage of concentration as opposed to diffusion of effort, but to fix this point in your mnid as it concerns advertising, especially industrial advertising, let me paraphrase a principle of physical science—

Advertising, like any other force, increases in effectiveness, in proportion to its concentration upon the resistance to be overcome.

Advertising Appropriations

This definition suggests the subject of appropriations, because the appropriation which is properly estimated will always be proportional to the resistance to be overcome. I do not know of any other satisfactory way to figure an appropriation.

Arbitrary appropriations may be all right as far as they go, but the fact that the appropriation *is* an arbitrary one, indicates that the initial thinking and planning has not been done properly. If the sales objective is settled upon as it should be, if the resistance to be overcome is approximated, then the appropriation can be made with assurance, and the advertising geared and meshed with the sales plan.

If a ton of fertilizer per given area of soil is needed, I fail to see any gain in using only half a ton. The man who tried this method of saving quite likely would be disappointed in the yield, and the next time would cut it down to one-quarter of a ton. In the end he would loudly proclaim, that fertilizer is no good anyway, and cut it out altogether. Thereafter the farms around him might double their production with fertilizer, but this man would no doubt run true to form and declare, "My farm is different; I've tried the stuff and I know."

When a man says "I think I will try out advertising" and sets aside a sum of money about as he would bet on a horse race, expecting to lose but hoping to win,—what he really means is that he will try out *his ability* to use a force of demonstrated value which needs no trying out. The man is on trial, not advertising.

In a new enterprise, a relatively small appropriation may be necessary, but the wise man does not expect this to influence all prospects any more than he expects his lone salesman to cover all of North America. A limited objective is established with a full realization of its limitations, and *enough* advertising and sales energy is used to reach it.

The question is not how much coal we think we can afford to buy for our power plant, it's how much do we need. It is sensible I think to measure an advertising appropriation by the requirements—by the resistance to be overcome. If it is not enough to take you to your destination, it is too much.

Getting the Right Atmosphere

I would like to go into the question of the proper atmosphere for industrial advertising, but I haven't time to do more than to pay my humble respects to the man whose every sense of fitness is outraged at the idea of running an advertisement for chocolate creams in a foundry paper, but who gleefully shoves an advertisement for heavy machinery into a periodical filled with advertisements of cosmetics and ladies' underwear.

And then there is the matter of copy—there are twenty good fights in that subject alone, but some one else is scheduled to carry that banner into battle. May I express gratification however, that advertisers are learning the great profit of using specialized copy in specialized mediums—of talking to a prospect in his own language, about his own business, in his own paper.

Advertising "Results"

No discussion of this kind would be complete however, without some reference to Advertising Results, and I hope I have time enough to go a little ways into that subject. Nothing appears to be so widely misunderstood as this question of results, and yet accounts are won or lost by agencies on the basis of "results"; advertising managers are hired or fired, and space salesmen get or lose business, solely because of the private opinion of some individual as to what constitutes advertising "results."

If the Industrial Advertisers Association can do something to standardize thinking on the subject of advertising "results," it will have rendered an invaluable service to advertising.

Perhaps some of the trouble arises from poor salesmanship on the part of publishers' representatives. The space is not properly sold; the advertiser has been given an erroneous impression of what the advertising will do; he expects the wrong thing, and in an amazing number of instances, the advertiser doesn't know why he is advertising. He has no well defined objective, and if a man does not know where he is going, I would like to ask how in the name of synthetic gin can he tell when he gets there, doesn't get there or is half way there. Yet he says, "We didn't get any results—cut out the advertising."

If this type of advertiser ran a retail store he would expect customers to walk in and say—"I saw your sign, I note that your name is Joblotsky, that you were established in 1874 and that you sell men's clothing. Furthermore, I was impressed by your window display, I think you have just what I want—give me a red necktie."

Too many advertisers judge results solely by the mail inquiries, and in most cases this is a false criterion. Few campaigns in business papers are mail order campaigns, and in all reason the advertisers should expect the orders to reach them through their *established sales and order getting machinery,* and not direct by mail. What direct mail business results should be looked upon purely as incidental to the main purpose?

When a man takes a stomach tonic he does not expect it to create a new set of digestive organs, but to improve the functions of the ones he possesses. Advertising in business papers is not a thing apart—a separate commodity—it is or should be part of the sales plan and designed to promote the efficiency of that plan.

SELLING RESULTS TO SALESMEN

Let me tell you a story that I think expresses the idea. A large concern held a meeting of its salesmen, about 50 of them, to sell them a sales plan involving the expenditure of $150,000 for advertising, a good share of it in business papers. The advertising manager was doing the talking up in front. The salesmen were decidedly indifferent, and several of them had sprung the old argument about increasing commissions or cutting the price to the amount of the proposed advertising appropriation, as an alternative.

Finally one of the old-timers got up; he was the dean of the force and it could be seen that his word would carry a lot of weight. He pulled his order book out of his pocket, and addressing the badly battered advertising manager, said, "Here is the thing that brings orders to this house, my order book here and the order books of my fellows around the room here. Now I would like to ask you if you can show me a single order that advertising ever put on my order book?" Then he sat down with an air of having administered the knock-out punch.

The advertising manager was a diplomat—an advertising manager has to be a diplomat or he will wind up at the automat—he wanted to avoid a controversy, so he said, "Yes, my friend, I will answer your question if you will first answer one of mine. Will you show me a single load of hay the sun ever put in the barn?"

In a few words he expressed the whole philosophy of results as applied to that particular business. It wasn't the business of the sun to put the hay in the barn, and it wasn't the business of advertising to put orders on the man's order book; it was the business of advertising to make it easier for the salesman to get more orders in the regular way.

To epitomize the thought—The salesman who can confine his work to *harvesting* has an overwhelming advantage over the salesman who is compelled to plow, harrow, fertilize, sow and cultivate.

When salesmen have expressed a fear that advertising might put them out of business, I have asked, did the linotype put printers out of business, did the typewriter lessen the total number of office employes, and the answer of course is that these inventions simply expanded the individual power of production.

Rodin, the famous French sculptor, hired ordinary marble cutters to rough out blocks of marble until you could begin to perceive the form of the figures Rodin desired to create. Then, and then only, did the great artist take the mallet and chisel in his own hands to administer the master strokes that would make of them works of deathless beauty.

Why should salesmen do the labor of rough-hewing when advertising can do it so much more economically? Bare-handed selling *must* be supplanted by the machinery of advertising.

MAIL ORDERS NOT SOUGHT BY MAIL ORDER HOUSE

Take Butler Brothers for instance; they sell entirely by mail through catalogs to retailers and do a business of staggering size. Yet they use many business papers, *not* to get orders but to promote the efficiency of their regular selling machinery, the catalog. They do not expect to cut new sales channels with business papers—their order producing machinery is the catalog, and every advertising and sales effort is focused upon making that sales machinery more effective.

If however you want mail orders, if your business is so constituted that mail orders can be expected, if you have a mail order selling plan, all you have to do is to pick the right papers and use the right copy. The Charleston Industrial Corp'n bought the city of Nitro, West Va. They invested $9,500 in business paper space and sold as a direct result $1,500,000 worth of materials. Why? Everyone who read their copy knew he *had* to buy by mail. There were no salesmen, no jobbers, no retailers, and the goods could be obtained in one place only.

The Fuller Brush Company sell millions of dollars worth of brushes entirely through house to house salesmen, and quite properly use thousands of dollars worth of magazine space, but *not* to get mail orders. Their object is to increase the efficiency of their established selling machinery, and according to their own statements, their advertising has increased the efficiency of their salesmen by over 500 per cent.

The great bulk of advertising should be supplementary to the general sales plan, and "results" should be judged by general sales and the sales costs. In short, "results" will flow back through the regular order-getting channels.

Succinctly expressed—*Publication advertising stimulates and intensifies the effectiveness of the regular order-getting machinery.*

Just a word more and I am done. The field in which you men labor is advancing faster than any other field of advertising. You belong to the alert, keen-brained army of advertising men that must depend upon advertising brains and judgment rather than the wasteful brute power of huge appropriations. Your success and your standing is not measured in terms of money spent, but in terms of achievement, and I rejoice that this is true because it shifts the premium from dollars to deeds.

The big *man* in the advertising world of tomorrow will be the one who best exemplifies the principle that a half an ounce of powder behind a bullet, in a gun of correct calibre, aimed at the right target, will be many times as effective as a hundred pounds of powder burned in an open field even though the latter may be the more spectacular.

A PLEA FOR THE MAN IN THE RANKS[1]

E. K. HALL

Mr. Hall, Vice-president in charge of personnel and public relations of the American Telephone and Telegraph Company, gave this address in Chicago, Mar. 22, 1923, under the auspices of the Illinois Manufacturers' Association, before an audience of five hundred executives of manufacturing establishments.

We do not need to look back 100 years in this country to find industry being carried on either by individuals or relatively small groups of individuals. The shoemaker owned his own tools, bought his own materials, completed his product and marketed it. The factories were small. The employes and the management all lived in the same small town and were generally well acquainted.

Then came the invention of the steam engine, followed later by the discovery and development of electricity as motive power, and then followed the era of the rapid introduction of labor saving machinery. The result was that the production of one man was doubled, trebled and often multiplied even ten or twenty times. One after another came the big machines, the enormous plants and large industrial concerns, all of which resulted in tremendous increases in production.

As the cost of production decreased, the product became cheaper and one after another new articles hitherto unknown appeared, and for all of them at these lower prices there seemed to be endless markets.

Civilization and industry were in the boom and men were now producing in large groups instead of as individuals.

It was literally an industrial evolution. Now what was the effect of all this on the artisan, the worker or the man in the ranks? There were two very distinct effects. The first one was the way it affected him in the ability to secure and participate in the enjoyment of material things —things for which he could exchange the money which he found in his pay envelope. He was able to have a greater diversity of food upon his table, more and better clothing, broader opportunities for himself and family in the way of education, entertainment and travel. Things that had been unknown or luxuries to his parents became commonplace or necessities with him, and he enjoyed many things which even the wealthy of the previous generation had not been able to secure.

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[1] By permission of the author.

Let me give you an incident in that connection, if you need any proof of that statement. I happened to be in Washington not long after the Armistice—when the Plumb Plan, so-called, was presented to Congress. I noticed by the paper that it was going to be presented to the House Committee that day; so I went over to the capitol and heard the Plumb Plan presented to Congress, as a great and wonderful panacea for the industrial problem of the railroads. I sat there and pinched myself, to realize that such a scheme was soberly being presented to the United States Congress as a real, practical thing.

Material Welfare and Unrest

The Chairman of that committee said to the speaker or one of the speakers, who happened to be Mr. Morrison, Secretary of the American Federation of Labor, "Mr. Morrison, I should like to ask you a question. I deem it a very important question. I consider its answer of great importance. The question is so important that I have reduced it to writing. After I have asked it, I wish you would deliberate before you reply, but when you answer, I should like, if possible, to get a categorical answer. I would rather have this answer from you than from almost any man in the United States.

Now, this was the question he asked:

"Mr. Morrison, has there ever been a time in any nation at any time in history when the man who was working for wages was so well housed, so well fed, so well clothed, so well educated, so well entertained, as he is in the United States at this minute? I would like to have you answer yes or no."

After about twenty minutes, Mr. Morrison practically answered that there never had been any such time. And yet, do you remember the conditions which prevailed a few months after the Armistice? Although the material welfare of the man in the ranks had never been so good as at that moment, there never was a time in the history of the United States when the unrest was so acute and so widespread in industrial ranks as it was right then.

It would be naturally expected that as a result of all these material benefits we would have found the industrial wage earner contented and perhaps even enthusiastic over the improvement in his conditions and his opportunities; but on the contrary there had been developing for years an increasing unrest and dissatisfaction on his part with his relations with industry. It was obvious that there was something wrong with the industrial scheme which, although it was providing him with great material benefits, was, at the same time, changing his attitude towards his job and towards industry as a whole. This then was the second effect of this new industrial scheme on the worker, namely, the loss or partial loss of his morale and his satisfaction with the job.

This all became very apparent during the adjustment of industry to war and post-war conditions, and you and many other employers promptly undertook to diagnose the situation and find out what was the matter.

And this is what they found, when they came to diagnose the case, that in industry we had been over emphasizing machines, processes and production. We had been underestimating or neglecting too much the prime or motive factor in industry,—the human factor. We found that the executives had lost contact with the man in the ranks: that the man in the ranks, who used to be pretty close to the executive, now was a long distance away from him, and in between the executive and the man in the ranks there had been interpolated all kinds of different officials, of different kinds and different names, so that the man in the ranks never did get a chance to see or know much of anything about the responsible executives, because the industry was too big.

Losing Interest in the Job

We found that he was losing his interest in his job; he was indifferent; he was more inclined to think, not "How well can I do my job?" which the old craftsman used to think, but "How much do I get out of my job and how little can I do?"

We found that in cases he was even hostile, distinctly and definitely hostile to the concern that he was living with, and making his bread and butter from, and we found that he was often going outside for the leadership that he wanted inside, but which in some way or other had disappeared, and that leadership outside was too often contrary to his interests, the interests of the industry, and therefore to the interests of society.

Now, it is quite obvious that if that condition really existed, if that was a fair diagnosis, there was something wrong in the new scheme of things—this scheme of big production, which was benefiting the man in the ranks materially, but at this terrible price of taking his interest out of his daily work. If it had really deadened his interest, if it was threatening to alienate his loyalty to the industry, the outlook for industry was indeed serious.

Now further study, I think, made it fairly clear how all this was a natural and logical result. These changes, this growth, these new processes, these new methods of big business, all came so fast, with such speed and with such a roar that he could not very well see what was going on. But he did know one thing, or he did feel one thing that was going on, and that was that somehow he was losing his status in industry. He was lost in the shuffle somewhere, so to speak. He felt that he was just one of many, just a cog in the machine, that nobody paid any particular attention to, or took any particular interest in him. His job, which had been originally a fairly broad job, had been narrowed, specialized and routinized, until most of the life in it, as far as he was concerned, had been taken out.

Furthermore, his tools had been taken away from him. He did not own his own tools any more. He could not buy his tools any more. The tools were big group tools or great machines and neither he nor any other workman had enough money by himself to purchase such tools.

He found that he was losing pride in his craft; he found that a lot of his responsibilities had been taken away from him, and that the responsibilities that he did have seemed trifling. He did not even know who he was working for. He did not know, in the great big corporation, just who the real boss was. One thing he did know, though, that whoever it was he seldom, if ever, came around the shop where he was, and he missed that contact with the boss.

Lost Contact with the Real Boss

Now, the straw boss was generally the only sample he had of the executives who were finally responsible, and too often he did not like the sample.

Demagogues and the yellow papers kept telling him that the real boss was someone that belonged to another class to which he could never hope to attain and assured him that this boss had no interest in him other than to make exorbitant profits out of his labors.

Although things did not seem to be going right and although he had grievances which he felt were real and although he thought his chances for advancement were being diminished all the time by the growing size of the concern, there was no opportunity for him to get at the real boss, the source of final responsibility and plead his own cause.

I am not arguing now whether or not he was justified in thinking all these things. If he thought them that was enough to cause him to begin asking himself "What's the use?" and everything tended to make him indifferent, and in extreme cases hostile and even bitter. Sometimes he even reached the point where he came to the conclusion that anything that could hurt the boss or the organization which employed the boss must in some way benefit him—the man in the ranks. Under these conditions it was simply natural that he should lose all interest in work itself as work. It was equally natural that his only interest should center in the pay envelope and what it was going to get for him after he got off his job. If there was no joy or interest in the job itself, the shorter the hours and the quicker he got to where he could spend some of his pay for entertainment or other things that interested him the better.

Now if this attitude toward the job was fairly representative of any substantial part of the people who were working in the industries of the country, it meant that in industry the house was in danger of being divided against itself. Under such conditions, industry could not permanently succeed and civilization and our institutions were as good as doomed. It was quite clear that there was something wrong in spots, if not in fundamentals, in the existing industrial scheme. It was equally clear that it was up to the leaders in industry to find out what was the matter and remedy it.

It was soon found that part of the root of the trouble lay in the nature of the industrial organization. Industry suddenly called on to organize large groups of people looked about for a precedent. Up to that time the only large groups of individuals in a single organization were to be found in the military organization and this form of organization was adopted by industry. The big industrial corporation was organized like the army. Instead of generals, majors, colonels, captains, lieutenants, etc., there were general managers, general superintendents, division superintendents, shop and floor superintendents, foremen, etc., etc., and a staff organization was built up to plan and advise the line organization.

Rigid, Unyielding Discipline

But in too many cases, industry neglected to recall that the purpose of a military organization is to deal with emergencies where the lives of people and of nations are at stake. Therefore, its discipline must be rigid and unyielding. Action must be instantaneous and orders must be carried out. They may be stupid or fatal—it makes no difference. The soldier is forbidden to think—objectives cannot be disclosed or discussed. The men are not supposed to even speak to the officers. The whole spirit is one of blind obedience. "Theirs not to reason why, theirs but to do or die!"

Now a military organization is suitable for industry so far as form is concerned—the staff for planning, the line organization for administrative and executive duties and the men in the ranks for carrying out the operations. But the spirit of the military organization and its methods are ill adapted to industry. Yet both were too often and too naturally adopted. In industry there is no great emergency. There are no big stakes like lives of individuals and of nations. No industrial organization stands between the nation and its annihilation, nor does it enforce law and order. An industrial organization is simply a corporate individual. It has only the rights of an individual; the right to produce for the benefit of society. It does not have and could not get the right to say, "Yours not to reason why, yours but to do or die."

The military has rendered a great service to industry in providing a suitable and practical form of industrial organization. But those industrial organizations that failed when they *took the form* to distinguish between war and industry, that failed to distinguish between the *purposes* and *prerogatives* of war as compared to those of industry, and that adopted the military discipline, the military spirit, the military caste and the military theory, have fallen into grievous error—often unwittingly. In the natural consequences of this error we will find many of the sources of our difficulty—the indifferent or discontented attitude of the worker.

Now what is the answer? Let us see first if we can agree upon the true nature of an industrial organization and the worker's relation to it. First of all, his relation is voluntary. It having become impossible for him as an individual to discharge his responsibility of producing something for society, he joins with other workers and with people willing to supply the tools or the capital to buy the kind of tools required in the modern industrial processes. They join together in a cooperative enterprise to produce something which society requires. The worker is to receive wages in proportion to the value of his services. The capital is to receive wages in proportion to its service and its risk.

CAPITAL'S INTEREST IN INDUSTRY

Now, if that is the way the organization is set up, who is going to run it? There is not very much question about who ought to run it. Obviously, the people who have taken their own savings, and risked them in the enterprise, are entitled to run it and to have the final and last word to say as to its management. They are entitled to appoint the men who shall for them manage and conduct the business. That sounds like good sense. It is equity. It is sound business. And I never have seen a man in the ranks who questioned it. The man in the ranks admits that is a fair proposition.

But what the man in the ranks would like to do is to know something about the plans. He is willing to turn the proposition over to the other people to run, the people who bought the tools, but he would like to know where the job is headed. He would like to know something about the plans. He would like to know something about the results from time to time. He would like to make suggestions once in a while. He would like to discuss his relations with this joint enterprise. He would like to talk about his compensation and his reward from time to time. He would like to talk over and know something about the changes that are going on, whatever they are. He would like to have something to say about them, or he would like to ask about them.

If an order that he gets looks to him from his point of view like a stupid order, one that is not in the interests of this joint enterprise, he would like to talk with somebody about it. If a practice seems wasteful he would like to have it explained. In other words, he would like a chance to be heard, and he is right. He ought to have a chance to be heard. If he does not have a chance, he is bound to feel that he is out of it, that he does not belong, that he is in the wrong pew. He begins to believe that this is not the joint enterprise that he was led to believe it was. There is not the mutual interest, apparently, that he has heard talked about. Then, of course, he loses interest, and he feels that under those circumstances he is not getting a square deal; and he is not getting a square deal. He may be getting first-class bang-up good wages, but there is a whole heap of difference between a square meal and a square deal!

Now, if we can agree that the industrial organization is really a voluntary organization for group effort, then it is not so much like an army, but it is more like a team. The team has many members often with widely diversified duties but every one is supposed to perform his function at the right time, and in the right way, so that the team can reach the team objective, whatever that objective may be. And success in any large industrial organization, assuming reasonable ability of the men and women on the team, is going to be proportionate to the amount of real team play that there is in the organization.

Now, you cannot have real team play without team spirit. What is team spirit? Well, I do not know just exactly what team spirit is. I do not believe there is anybody in this room who can accurately define team spirit. But there probably is not a man in this room who has not at some time or other felt it. We talk about a team, and originally we thought of a team of horses. We know approximately what a team of horses can do. The engineers can take their slide rules and tell us just how much horsepower we can figure on, and it is a definite fixed amount, just so much horsepower, always figured in the same way. But that is not the way you measure manpower. Who has a formula that can say what manpower is per man? Nobody knows, because in addition to his muscle, he has two intangible elements of power—brain power and will power.

Elbow-to-Elbow Contact

In some magical way the elbow-to-elbow contact of men working together with a common purpose and toward a common objective stimulates these two intangible elements of manpower to a degree of joint accomplishment far beyond the aggregate of what the same men working separately could possibly attain. That indefinable something is team spirit. It is group morale. It defies defeat. It insists on success.

Now, how are we going to get team spirit? Would it not be fine if we had it in industry? Would it not be fine if every man in the ranks was just straining, on edge to get in and help the other fellows put the thing across, whatever it is that you are trying to put across? Well, how are you going to get it? You can only get team spirit in this way: Every man on the team must know that he is a member of the team and that the team is banking on him no matter how humble the position, no matter how seldom he carries the ball. He has got to realize, if he is going to get the team spirit, that he is a real member of the team. Now, he must know also what the team objective is; he must know whether it is going this way, or that way, or the other way. He must know something about his team mates. No man is going to give all he has got, and then some more, unless the fellow right next to him, and the fellow over here, and the fellow over there, is giving all he has got, and more. Then is when you get your team play.

But you have got to know the men on the team first. You have got to know them well enough to believe in them, and bank on them, and you have got to get into the frame of mind where you want the team to win, and you are going to make it win. Then you have got something approaching team spirit. Then, win or lose, you will get the thrill of joint accomplishment, the inspiration that comes from elbow-touch-elbow effort and that is one of the greatest of all incentives for human endeavor.

Now here is the plea I want to make for the man in the ranks. Make him a member of the team, just a straight, honest-to-God member, and treat him like one till he realizes himself that he is a member. That will take time. It will take quite a lot of time. He does not think he is on the team now. He does not think that you think he is on the team now. He thinks that you consider that your team consists of the men whose names are listed on your organization chart—the chart showing your line and staff organization. He thinks that he is working *for* that team, and not *on* it.

Throw Away the Military Spirit

Now, the first thing to do is to make him realize that he is a real, actual, recognized member of that team. This requires no change in organization. You can keep the form of organization you have, the staff, the line, and the men in the ranks. But it is time to throw away all of the military spirit, and all of the military theory. Keep the form, but do away with the military caste and the military theory. Then call in your line organization and just explain to them that there is something new; that you are going to play this game in a bigger way than you ever have before, and let them know what you are trying to do, that you are trying to take hold of the man in the ranks and bring him in, and make him a real member of the team, and make him understand that he is a member of the team. Explain it patiently and carefully to your line organization. They are the backbone of your business. They are the backbone of industry. They will make or break the whole proposition. Tip them off that it is all right to keep some of the discipline, for we have got to have law and order in industry just as we have got to have it in government, and just as we must have it in war. But just whisper to them that discipline, in order to be firm, does not have to be rough. Tell them that what you are doing is not making any change, but you are simply enlarging the responsibilities of the line organization; you are making them responsible for something new; and that is for giving the opportunity to the man in the ranks to really get into the game, and get some fun out of it. You might tip them—the line organization—to let the man in the ranks carry the ball once in awhile.

Now, the line organization is pretty liable to think that their chief and perhaps their only function is to direct. How would it be to tell them that from now on, they have an important additional function, and that is to interest, to stimulate, to inspire and to humanize? Tip them off on this too, that instead of trying to have a team that is depending solely on a few stars, from now on you are going to have a star team, and then get out your Kipling and read "The Maltese Cat," and see what the difference is between a star team and a team that is staking its success on a few individual stars.

Well, now, what next? How are we going to get this team play? What we are after is the sympathetic, earnest, honest, determined co-operation of the human factors in industry. How are we going to get that? There is no definite formula for it. There is no fixed, ready-to-use, ready-to-wear program. It is a question of dealing with all the human reactions, and everything that that implies—human emotions, yearnings, discouragements, weaknesses, hopes and ambitions. It is not an exact science, and there is no exact formula, and the problems will differ in every industry, and they will differ in a given industry, in every department, and in every department they will differ more or less according to the individual.

Contact, Conference, Confidence, Co-operation

In our companies, however, we adopted about three years ago four guideposts. They have served us well. They never yet have led us off the trail. We have a good deal of confidence in them. I will tell you what they are, and recommend them for your consideration. It is not a formula, as I say. It is not a panacea. They are simply four guideposts, that have seemed to lead us toward where we are trying to go. We call them "the four C's," and those C's stand for four words: Contact, Conference, Confidence and Co-operation.

Let me explain them to you. Let us start first with this word Contact. I will start with an illustration. Suppose, while we are sitting here, that door over in the corner opens, and we all look over there to see who is coming in. We see a woman with a shawl over her head, and a baby in her arms. It is obvious as we look at her, that that baby is sick and suffering, and that the woman too has suffered for a long time. Now, somebody over in that corner of the room will say, "What is it, madam? What can we do for you?" And she will say, "I beg your pardon. I am all wrong here, apparently. What I am trying to do is to get to the hospital with my baby." Then somebody asks her, "What about the baby?" "Well, the baby has been sick, and the baby is not going to live if I cannot get it to the hospital. Its father is away hunting work, and we have not had any food in the home for two days." Now, what happens? Somebody at every table in this room gets up and says, "Come on, fellows. Loosen up. Dig deep. This family needs some help." Why is action so immediate and spontaneous? Simply because you have been in contact, and direct contact, with human suffering and human anguish and human need. But you do not have to actually see it to know that throughout this city there are thousands of cases of human suffering and human need right now; you know it, of course, in a way, but when you get into contact with it, then you feel it, then you really sense it.

In other words, we have to get close to the things that we really want to understand. We cannot get close to conditions or people at arm's length. We found that as we had grown, and grown, and grown, we had lost contact with the men and women in our industry, and they with us. That was their loss to some extent but it was our loss most of all. We had lost these valuable contacts by getting so big. We must get them back in some way or other. The first thing is to start getting together again. That is Contact—the first guidepost.

Now, just getting together in and by itself would not be very much more than a gesture. What we want to do is to get acquainted once more, to understand each other, and each other's job, and just where we each fit, and something about the other fellow's ideas and his purposes. Now, that means we must talk over things together. You cannot get acquainted with a man until you have talked with him. You simply say, "Mr. Smith"—"Mr. Jones"—"how do you do," shake hands, and are gone. Smith does not know Jones yet. You have got to wait around and talk with him and then you begin to get acquainted.

Getting Acquainted with Each Other

So here comes along our next guidepost: Conference. We have got to arrange in some way or other to work out some conference with our people, especially between the men in the ranks and the men in the line. Then we will get acquainted with each other; then we will get acquainted with each other's responsibilities and each other's ideas.

We are working on a theory that we believe is a sound theory, and I know that many people in this room are working on a very similar theory in their industries. Our theory is this, that in our companies at least 95 per cent of the men in the ranks, in the line organization, and on the staff, are fair and square when they know the facts.

Well, if that is so, then when they get acquainted well enough they will all come to realize it themselves and they will naturally begin to have confidence in each other. And when they have talked long enough this suspicion, this doubt, this distrust and all of that sort of thing is going to disappear. That is inevitable, if in these three groups 95 per cent of the men are square, and that means that sooner or later they are going to come to have confidence in each other. So that is the third guidepost: Confidence.

Now, that means that they are going to begin to bank on each other, believe in each other, depend on each other, stand by each other, and see each other through. That is Co-operation. That is what we started for, team work, through contact, conference, confidence, co-operation. Perhaps it would be more accurate instead of speaking of four guideposts, to say three guideposts and a goal post, because the fourth one is really our goal—Co-operation or Team-work.

Now, if an organization is small, if it is not too large, if the groups are not too big, and are not too scattered, that line of three guideposts and a goal post, lays out a very easy course to follow. It is simple. But the trouble is in most of the industrial organizations today, the groups are so big, and the organizations are so big, that it is a practical impossibility to get the whole bunch together. You cannot have universal contacts. Therefore, it must be done by having the big groups—that is, the men in the ranks—represented in some way.

Employes' Representation

We must work out the four C's in part at least through representation. How are we going to do it? Well, obviously it is up to the management or the line organization to take the initiative. The next step is to invite the groups of the men in the ranks, the big groups, to get together and organize in some form and elect their representatives with whom the men in the line can join in establishing these contacts and conferences. But some executive will say—and I have often had it said to me—"Yes, but don't you see what you are doing? That is just about the same thing as organizing a union. If you have not already got one, do not go ahead and invite one."

Well, now, I hold no brief against the unions. Many unions have accomplished a great deal for the material welfare of the men and women in industry. Some unions are fair and constructive. Other unions are destructive, and have done great harm, to their own members, to industry, and to society. I am not here to discuss unions. I simply want to point this out, that you cannot deal with big groups of men in the ranks in industry, unless they are organized in some way.

I would like to mention also in passing, that it stands to reason that the spirit of an organization based on the cordial, hearty, man-to-man invitation of the management to organize for the purpose of getting together with the management for the mutual interest of both, is bound to be quite different from the spirit of an organization which is based on an invitation from outsiders to get together, for the purpose of keeping the men in the ranks and the men in the line apart, and of stirring up distrust, suspicion and hostility, and even hate, as has too often been the case.

I also would like to make this remark in that connection, that a loyal, earnest employe can join the former type of organization with his head in the air, without any loss of self-respect or standing, but he can join the latter organization only reluctantly, only with a sense of regret that you know and I know has many a time nearly torn his heart out because he knew he was losing something that he prized as one of his highest possessions.

But to get back to the point. Once the organization is formed, and the people in the ranks have effected their organization, what is the next move? It's up to them; not up to you. They will probably go ahead and elect their committees, but right here let me raise a hand of warning. Remember that they are their committees. It is their organization, and not the management's. You have your own line organization. Do not undertake to butt in and run theirs. It is theirs, it belongs to them, and it is right that it should. You do not need to be disturbed about what they may do. They may do things that might disturb you at first but pretty soon they will begin to invite you to their councils, just as you invite them to yours. But do not try to mix into their organization or try to tell them how to run it unless they ask for advice. It is their proposition.

VALUE OF THE ROUND TABLE

Now, pretty soon, after these committees are elected, and the management has appointed its committees, they will get together for the first conference. I see a lot of men in this room who have sat in those first conferences. You all know how it is. Everyone is ill at ease, the people on this side of the table, and the people on that side of the table. Of course, before very long there is not going to be any side to the table. The table is going to be a round table, and you are going to sit wherever you happen to come in. But the first time there are always two sides to the table, and the men from the ranks do not act like conferees. They take the attitude of advocates, and the men from the line do not act like conferees. They also take the attitude of advocates—only they seem to act more on the defensive. Very soon, however, this disappears and they all act more like conferees. Then in some way or other, after they talk it over long enough, the grievances that are the first things that are brought up, always, sort of get ironed out. The real ones get fixed up, and then the great multitude of fancied ones that are largely due to lack of information, knowledge and understanding, just naturally clear up as the facts come out.

Now, we have things pretty well cleared up. What are we going to do next? Do we stop here? Most certainly not. The man in the ranks has some more things that he wants to talk about. He wants to talk about wages, and wage schedules. He wants to know whether those wages are just. They may be, and they may not be. He does not know. He has been told that they were, but he would like to talk the matter over. He would like to talk about the working conditions. Most likely he has some ideas of his own about them. There are certain spots, very likely, where he would like to have the rough edges pared off, and a little change made here and there. There may be something dangerous in the shop, that keeps him a bit worried, that continually keeps the good wife at home a bit worried, and he would like to know if there is any way that could be made just a little safer. Then he would like to know what the prospects are of the job being steady; whether there are going to be any lay-offs within the next three months, six months, or nine months, or a year. Those things in due time all get talked out, and the conferees come to a general agreement that things are about right, if in fact they are about right. If they were not, they have probably by this time been adjusted.

Now, the job is done, is it not? That is where so many people have made the mistake. This is not the place to stop. Why not? If the grievances are cleared away, if the wages are at the moment agreed to be all right, if the working conditions at the moment seem to be satisfactory, if dangerous conditions that may have existed seem to have been eliminated, if about everything that the man in the ranks wanted to discuss has been cleared up, why should we keep on? Why, this simply clears the decks, that is all. We have not really gotten anywhere yet. We have just been clearing the decks, and getting ready for business, that is all.

Common, Every-day, Decent Justice

Here is where constructive effort, constructive action, really starts. So far, results have been essentially negative. They have been extremely gratifying to all the conferees. But it has only been a matter of doing what is common, every-day, decent justice; that is, letting the man in the ranks know, fully, frankly and thoroughly, just where he stands, and what are his material relations to the business.

But here is where I want to come back to my plea for the man in the ranks. Now is the time to put the man on the team, and make him a member of the team. How are we going to do it? Well, first, make these conferences that you have been having more or less spasmodically and perhaps only when the men took the initiative, a permanent, regular part of the conduct of your business. Make them just as much a part of the organization of your business as the line organization chart that hangs on your wall. If you can, put some of their committees right on the organization chart itself.

Now then, what we want, what every executive wants, if he is entitled to it, is the unstinted confidence of all the men and the women in his organization. All right. How are we going to get it? Give them yours first. If you want theirs, it is your move. It is up to you. Give them yours first, and theirs will soon come back. Prove to them that you regard them as essential members of the team and propose to treat them as such. Prove to them that you are going to have unlimited confidence in them. Take a few chances on making a few mistakes. You will make some but not very many. Give them all of the information about the business that they will absorb. They are entitled to it. Explain the policies of the business, explain the practices, tell them what is the foundation of the rules, and why the rules are necessary in the orderly conduct of the industry. Tell them why the routines, that seem to be dry and deadening, are necessary, and that routines are simply methods of fixing responsibilities which they know have to be fixed, just exactly as well as you do.

Explain to them about the balance sheet, and what the balance sheet means. Put all of the cards on the table. Discuss the plans for the future. Tell them the obstacles that threaten the success of the industry. Tell them what your difficulties are. Tell them what the problems of the management are, and what your own problems are. They do not realize that you have so many or such baffling ones. Tell them something about the business economics that lie at the foundation of your business. Ask for their suggestions. Let them know that you know they have got brains. Do not let them think that you think you have hogged all of the brains in the industry, because you are wrong. You haven't all of the brains, the men in the ranks haven't all of the brains, but among you all, you have all of the brains that there are in the industry. So why not pool them and get all the benefit of all the brains in the industry for the industry and the people in it? So ask for their suggestions. Put up problems to them, and ask for recommendations, and you will get some answers that will surprise and help you.

Share Responsibility with Workers

Let them figure out the costs of their individual or small group jobs. Let them have all the responsibility they prove they can carry. Share with them the traditions and the romance of your industry and theirs.

I have had people say to me as some of you have had them say to you, "But they will not understand it all." Their leaders will understand it. The live ones will understand it. The men who are going to take your place and mine some day in our industries will understand it, and they will all understand one thing about it, if they do not understand another word or a single figure; they will understand that what you are trying to do is to give them your confidence. They will understand that, and when they do you will have theirs.

Another thing that some of you have had said to you, no doubt, is this: "Yes, that sounds all right; that sounds fine, but it simply won't work." It is too late to say that. That time has gone by. I see too many men in this room who could come up here and tell by the hour how it has worked. That is the answer, as to whether it will work or not.

But we have heard this said: "What about this balance sheet business? You are not going to show them the balance sheet, are you?" I did not say "*show* them the balance sheet." I said, "*explain* the balance sheet." I do not mean to take the balance sheets, and broadcast them when the men come out of the factory gates and say, "Here you are, get the latest dope, right off the books." I am talking about explaining the balance sheets.

Now, let me give you, in order that I may make myself perfectly clear, two or three illustrations, and if you will pardon me for doing it, I will take them from my own industry. The total assets in our group of companies is about $2,000,000,000. Of that, $1,700,000,000 is invested in plant. We found out very early in talking with some of our people, how they regarded these figures. They saw them in our annual reports. They asked, "What do you do with all this money? Where do you keep it?"

They simply did not get the picture. Why not? Because no one had ever taken the trouble to let them look at it. And the picture was so easy to paint. Any amateur could paint it. It is this: Our business is so big the Company must furnish the tools. The Telephone Plant is the tools. Every time a man or woman comes to work in our organization, we have got to go out and get $6,000 to provide the tools for that individual, the average investment for tools per employee being over $6,000.

Explaining the Financial Surplus

Let me give you another illustration. Last year the surplus for our group of companies, at the end of the year, was between $24,000,000 and $25,000,000. Now that looks big to any man who is working for wages and who is not accustomed to analyzing figures. It is the perfectly natural thing for him to say, "If all this money was left over at the end of the year, what was the meaning of all this talk that we have been hearing all through the year, about the necessity of economizing; that we must save every scrap of copper wire and that every minute during working hours must count? What do you mean that we have got to avoid waste of time, effort and material all the time in order to be prosperous, when at the end of the year we have $25,000,000 left?" Now, what I said was, "*Explain* the balance sheet." It is explained very easily, and when you tell the man that if the expense of operating our business last year had been one cent per telephone instrument per day more than it actually was, there would not have been any $25,000,000, but the whole blooming surplus would have been wiped out, and the dividends would have been cut in half. The balance sheet in respect to that item is explained. Then he is ready and anxious to get in and help to keep that one cent per day margin on each telephone instrument, because his job is at stake, his future is at stake, his company is at stake. When he knows that, and understands it, there is no one in the whole outfit who will go stronger or further to help preserve that margin of safety. That is what I was talking about. Not broadcasting the balance sheet but explaining the balance sheet.

Now, I know perfectly well that there are gentlemen in this room here who think just as we do about this, but who are raising in their minds this question. They say, "That is all right for you fellows in the public utility business, with no competition, you can put every card you have on the table. You can take all of your figures and facts and put them right out on the table. They are open to the whole public now because they are subject to inspection by the public authorities all the time. But we are in private business, in competitive business. There are figures and there is other information that we cannot put on the table the way you fellows do because our competitors might get hold of them. I realize that and you are perfectly right about it. We have the advantage of you there, but it is not so much of an advantage after all. But I will tell you what I think is the answer. You do not have to show to the men any of the facts about your business that it is necessary to keep in the executive offices for the protection of the industry. It is their industry just as it is yours. It is just as much in their interest to protect it as it is in yours. And just the minute that you inspire in the men confidence, so that they are ready to bank on you 100 per cent, all you have to do is to say, "Boys, this is about all we can let you have. We cannot tell you the rest of it. Some of these roughnecks here among our competitors might get wise and we have to tightwad the rest of it." And they will say, "All right. Lock it up. That's your part of the job, meeting this competition." Just once get the confidence of the men, earn it, and then get it, and they will take your word for it as to what is proper for them to see and what is not proper for them to see.

Wage Is Not the Only Thing

But we have all of us run across men who have said this to us, "That sounds all right, but you don't really believe it, do you? The men do not care anything about all this information about the Company and its affairs, and how their particular job fits in with the whole thing. Their only interest is in the pay envelope, in their wages, and in how long they have to work."

Well, all I have to say is, if that were true, God help the industries of the United States and the men who are dependent on them. It is true that wages are necessary and vital. The man in the ranks must have them, just as you and I must have them, for our work. They are necessary and vital to society. But wages are only money, that is all they are, just money, and money is a long way from being the whole thing.

I would like to tell you a little incident. If you will pardon me for making it personal again. It is right plumb to the point. A good many years ago, when I started in business, I began in the practice of law. My mother, who lived up in the country, had saved a little money, being a thrifty New England woman. I was home one time for a visit; I had been practicing law then for a couple of years, and she thought I must be quite the real thing, and of course I never tried to disillusion her. (Laughter.) So she said, "I have four hundred dollars that I would like to invest. I would like to have it earning something. You would know, being down there in the city in touch with business affairs, just what to invest it in. I don't. Will you take care of it for me?" Oh, yes, surely I would know. Well, to make a long story short, I took it back with me. I invested it, and inside of six months this particular stock had declined in market value just seventy-five per cent. Before it was all gone, I woke up, swallowed my pride, got what I could save out of the wreck, and sent it to her with a very humble and abject apology. Now, she could not afford to lose that money. It represented a substantial item in her savings. I got back a letter that had some very good dope in it. It has been good for me and I will pass it along to the rest of you. It may help in the study of this industrial relations problem. She said, "My dear boy, do not give it another thought. Don't you know that I have a thousand things that are infinitely more valuable to me than money?"

When the man in the ranks finds that the interest of the boss is not confined solely to the balance sheet, he soon ceases to center his own interest solely on the pay envelope. He knows just as well as anybody in this room knows, that wages do not buy him and cannot buy him the thing that he wants above all else, and that is the pride and joy of work. Where do you people in this room get your real fun? You get it on the job, every day, working on your problems, working at the problems of your industry. That is where you get it. There are men in this room who could retire from business tomorrow. They have the money to retire, but they do not dare do it. Why? They are afraid they would shrivel up and blow away if deprived of joy of work—interesting work. That is their great big interest in life. Don't you suppose the fellow in the ranks wants to get a little taste of that? He wants it and needs it more even than he or anyone of us realizes.

Hand of Brotherhood and Friendship

He knows wages will not buy it, and he knows that wages alone will not buy him a real status in his industry but he wants to get into his industry and be a part of it. His industry is his only chance for contact with the world, and the big scheme of things, just as it is your big contact and my big contact. You say they do not *care?* You say that the men in the ranks do not care? I tell you, the man in the ranks is waiting right at the chalk line to grasp the hand of welcome the moment it is stretched out to him, the hand of brotherhood and friendship, the hand that is going to pull him over that chalk line, from being a water carrier for the team, to being an honest-to-God member of the team. That is where he is waiting.

And when he comes across that line, he is going to come to cooperate, to team-play, to get into the game and get the thrill of joint accomplishment that means as much to him as to you and me, to win or lose fighting shoulder to shoulder with his comrades in his industry.

But I have had this said to me, just as doubtless many of you have, "That sounds all right, but it takes too much time, getting together in all these conferences and explaining every thing. It takes too much time. Of course, it is fine to have the gang know something about the business, but we are too busy; we are busy executives."

All right. There are plenty of men waiting just outside of the factory gate, who are not too busy. The labor parasite, the soap box orator, the yellow press—they will spend all of the time that is necessary to tell the man in the ranks all about your business. There may not be one single word of it true, but they are waiting there, to tell him all about your business and about you and they will call him brother, and comrade, while they are pouring their poisonous dope into his ears. They are not too busy.

But when a man says to me, "I am too busy; this will take too much time," I think that what he really means is: "Will it pay for the time it takes?" I think that is the real thing that he has in his mind. Well, I dislike to discuss it from just that point of view, but I would like to answer that question. I will take three illustrations out of the hundreds that I could tell you of. Mr. Perkins here could follow with hundreds more that would answer the question. But let me give you just two or three. Once more, if you will pardon me, I will take them from my own industry, my own experience, these illustrations as to whether it pays when the men have been taken over on the team and made actual members of the team.

The Habit of Paternalism

Our business, the telephone business, is not in itself a hazardous business, but we have hundreds of thousands of miles of wire high in the air. Men have to work on those wires. Sometimes they have to work on wires that are in proximity to the wires of the high tension companies, which carry a dangerous current, while ours do not. Furthermore, there is a certain amount of accident hazard in any ground or shop work. We formerly used to get out semi-occasionally not only specifications about how to build the plants, how to carry on the work, but along with that went safety rules, "Don't do this, don't do that. If you do this, do it this way; if you do that, do it that way," etc. We had fallen into the habit of paternalism just as so many of you doubtless had. Our intentions were of the best but the results were not especially satisfactory. The men kept on getting hurt. Finally someone had an inspiration. Who are making these safety rules? The ablest engineers in the profession, sitting in a room on the top floor somewhere, earnestly working out instructions to fellows out on the firing line as to how not to get hurt. It seemed just like when a youngster starts out for school: "When you cross the street, look both ways for automobiles. Be sure not to step on any banana peels and don't climb any fences with nails sticking out." Why not put it up to the gang, and let them make their own safety rules? They know what causes these accidents. They know what protection they want for themselves and from a careless fellow worker. Give them a chance to do it, and get some real rules. That was tried, and there were some safety rules that *were* safety rules—rules not made by the line or by the staff but made by the men in the ranks. In some of the companies they analyzed every accident for the last five years to find exactly what caused it and how it could have been prevented.

I was trying to answer the question when I started out: Does it pay? The accidents decreased ten, twenty and even thirty per cent in some companies—and in specific divisions and districts as much as sixty and eighty per cent. That is the answer as to what happens, when the men in the ranks are really taken in and given the opportunity to do the kind of things that they can do—often far better than the men in the staff or the line.

Putting Up Prices

Let me give you another illustration. You know, we cannot do the way you gentlemen do to increase our revenues. When you want to increase your prices, you increase them over night. As I understand it, you get together, make a few figures, decide you need some more revenue and then add ten per cent to the price lists in effect the first of next month. I do not know whether that is exactly the process, but to us, who are under the public utility regulation, it looks just about that easy. But anyway, in our business, it is a long, painful, painstaking, patience-requiring process. It is a major operation, in other words.

The utilities were working on narrow margins before the war, and we are working on narrow ones now. We had to get our rates raised to get them adjusted to the dollar of today. Now, in one of our states, not a long way from the middle of the United States, but not adjoining or touching Illinois, for some reason or other this process of adjustment functioned very slowly. I do not think you have such things in Illinois, but there are some states where politics seem to creep into some of these business questions. And in the particular state that I have in mind, politics had entered in. It was a long time before any adjustment was made and the result was that in that state the company was in the red.

Well, in line with the general practice I have been talking to you about, the men in the ranks all knew that. They knew exactly what the results were in that state. They knew that the Company was running behind in that state, and that the other states for the moment were really carrying that state. One day without any of the management knowing anything about it, right out of the clear sky there came a communication, a letter. I wish I had it here. A copy of it was sent to me, and I read it, and it choked me up when I read it. It was from the men in the ranks, and they are a bunch of thoroughbreds. They said, "Whereas," and then they recited the conditions that I have described and they wound up by saying, "We want to do something to help." Now in that particular company the wage scale is set up on a basis of time and overtime. So the men went on to say "If it will help any, we would like to give up our overtime for a period of six months, and if at the end of that time conditions are not better, then we would like to go along for six months or a year more if necessary, so that we can feel that we have done our full share."

Real Help from Friendly Employes

Let me give you an illustration right here in your own town, let me tell you what the men here in Chicago did in the Illinois Bell Company last May. We had a lot of what we call "held" orders; the kind of orders where we cannot install your additional telephones as quickly as you want them. I guess you call them the "Oh hell" orders. Well, they were piling up and up. The trouble was, you had not tipped us off a year or two before as to how much service Chicago was going to call for. There was an abnormal lot of orders waiting when the men in the plant organization realized the situation and they saw that that was not a good thing for the company. They talked it over among themselves, and they came back with a suggestion. Now, in Chicago the men work on a different form of wage schedule, one which does not ordinarily include extra payment for overtime. Those men came to the Executives and this was their suggestion: "We have a proposition to make on this held order business. The public does not like it. They don't understand it. It is not a good thing for the company. We will work extra time, overtime, until we reduce that number of held orders to normal. We will put in as many more hours each day as we can put in effectively, to reduce the orders to normal, and relieve this tension." That was their own suggestion. They gave of their own accord, on their own initiative, 60,000 working hours to remedy that situation. For whom? The Company? For themselves? For the management? No. In order to protect the reputation and good name of their team—their company, with the public in the City of Chicago. That is what they gave it for, and they are proud of it and we are proud of them—proud to be members of the same team.

Now that question, "Does it pay?" seems kind of foolish. It seems foolish to ask, "Will it pay?" to give a man a man's chance, a chance for intelligent performance as against blind obedience, a chance to let him help protect his own job, his own future, his own industry.

But I would like to answer that question, "Will it pay?" categorically. If that is what anyone wants to ask, I should like to answer. And I will say this, that in satisfaction to the executives of having given a thoroughly square deal, it will pay a hundred fold. In money, it will pay dollars for nickels, and the time will come in many cases where that one thing alone will spell the difference between success and failure, and I can tell you industries where it has spelled that, within the last two years.

In these difficult days of changing and uncertain conditions, local and world-wide conditions, is it worth anything to an executive or to the group of executives that carry the staggering responsibilities of modern industry for them to know that every man and woman in their organization are with them, because they know that the executives are with them? Is it worth anything for an executive to realize that the men and the women in the ranks have an unshaken confidence in him, because they know he is square, and is banking on them? Is it worth anything to him to know that they are ready to stand back of him through thick and thin, with every single ounce they've got, muscle and brain, heart and soul? Get out your pencils and your paper, and your slide rules, and figure out how much it is worth to an industry to know that the men and the women in it are right behind the leaders to the finish, win or lose. Find out how much it is worth to that industry, and that is the answer to the question of whether or not it will pay.

NORMAL, HUMAN RELATIONSHIPS

Now the answer to this whole industrial relations question, is so near to us, so close to us, and such an every-day thing, that the tendency is for us to overlook it. It is simply this. We must get back into industry the normal, human relationships that bigness in anything tends to squeeze out. Whether it is a city, or whether it is an industry, mere bigness tends to squeeze out the human understanding, the human sympathy, the human contacts, and the natural human relationships.

Now, what are the right human relationships in a given industry? I would like to answer that question in a single sentence. It is not my sentence. It came from a man in the ranks. He said in one sentence all I have been trying to say to you all the evening, and he said it a good deal better than I have said it. This is what he said, after this general program that I have been talking about to you had been going on for about twelve months:

"I have been in this company a little over seven years. I always felt until about a year ago that I was kind of a servant of the family. But now I am beginning to feel like I am a honest-to-God member of the family, just a real member, and believe me, it makes life look different." There is the story in a nutshell.

I used to be a lawyer before I came into the telephone business, and I have the greatest respect and admiration for the profession. But I am going to admit that I think the lawyers have unwittingly been very largely responsible for starting industry, and the thinking of industrial executives, up a wrong trail, as to what the real human relationship is, or ought to be, in industry and I think it came about in this way. When this great industrial expansion came along, some vehicle was necessary to carry it, and right ready at hand was the corporation which could be made as big as the needs of a given industry demanded. Then the executives called in the lawyers and said, "We have questions here that we want answered. We want to know what is the relationship between this great big corporation, and the men whom it employs. We want to know what are their mutual obligations." The lawyers turned to the common law, that has come down to us through centuries of jurisprudence, and they came back with an answer, and said, "It is the relationship of master and servant." Then the executive, being advised that that was the legal relationship between the corporation and the employees apparently began to assume in too many cases that the relationship between himself and the man in the ranks was probably that of master and servant; when if he had consulted either his heart or his conscience he would have satisfied himself that the man in the ranks was entitled to have that relationship become that of brother and brother. That is what the man in the ranks has been yearning for. But it was always the management's first move, and the management was being advised that this was a relationship of master and servant.

Too Much Blackstone

I will tell you that right here lies the source of practically all our trouble in trying to work out what we call the industrial relations problem and in trying to find out what is the true, proper human relationship in industry, we have had too damned much Blackstone, and not enough New Testament. That is one of the things that is the matter with industry.

Now, before closing, I want to say this, that I hope in my zeal in presenting the case for the man in the ranks you have not assumed that I feel that in all industries the man in the ranks needs any advocacy by me or by anybody else, or that I feel that great progress has not already been made along the very lines that I have been talking about. Hundreds of industries in this country have already gone a long way in working out this relationship on a cooperative, human basis, and have been bringing the men in and onto the team.

I have neither sympathy nor patience with the men who rant about capital and labor, and who either assume or argue that it is going to be an everlasting conflict between capital and labor, and that in some way or other, it is nothing but a fight to the finish. The executives who take that position, and refuse even to try to work the thing out on any other basis, are not in step with human progress, and in my judgment they are a menace to the industries for which they are responsible. The so-called labor leaders who preach the doctrine of hate and force, and the doctrine of forcing apart instead of getting together, are false to the people they claim to represent, and are a menace to society.

I want to go on record as saying that there has been more progress in working out this industrial relations problem in the United States, in the last five years, than in this or any other country during any similar period in history.

We have shown the old world that the biggest single problem in government could be worked out by giving to every citizen a real place and a real part in the government. And we are going to show the world that the biggest single problem in industry can be worked out in the same way—by giving every man and woman in a given industry some real place and some real part in that industry.

Now, in closing, I want to tell you a little story. I have told it a good many times, and it may have come to your attention. However, it will bear repeating, because it seems to me it tells the whole story in a nutshell. There were three men cutting stone, stonecutters, working inside of an inclosure, and back of them, up on a little eminence, there was a cathedral, about three-fourths completed. A stranger came along and said to the first man, "My friend, what are you doing?" "Me? What am I doing? I am working for eight dollars a day." He went along to the next man and he said, "My friend, what are you doing?" "Me? What am I doing? I am squaring this stone. See? I have got to make it just like this; see, right there. I have to make it absolutely straight, an absolutely straight edge right down there, on that part of the corner, and square it right off here. Look, I'll put the straight edge on it for you. Isn't that a perfect edge! You see this little niche that I have cut, that little niche right there? The other fellow working down there is cutting a niche just like this, only the other way. His fits right into mine. If we get them just right, they lock together tight, and they are just as solid as if it was one stone." The stranger walked along to the next man and said, "What are you doing, my friend?" "Me? What am I doing? You see that cathedral up there? I am helping to build that. Isn't it great! Isn't it grand!" There is the answer. There, I submit, is the whole answer.

SHARING THE JOB TOGETHER

If we in industry can only all realize that working toward the pay envelope alone is a sordid job, that it isn't worth while, that it isn't living, that it isn't life, we will have accomplished much. We should, of course, in every possible way instill and inspire the interest of all our comrades in doing each his own job right so that it will fit into the next fellow's and make the whole thing strong. The more interest and the more pride we can each find in our own individual jobs the better citizens we shall be. But we shall all find our greatest incentive and our keenest pleasure in the job that we all share together—share and share alike—the man on the staff, the man in the line, and the man in the ranks; and that is the job of building up a great industry that has its recognized place in the community, in the state, or in the nation. One that we can all be proud of, for it is the product of our joint effort. We have contributed each his humble part. We have felt the joy of joint accomplishment. We have felt the thrill of the team play—the exhilaration of the team spirit. And above all we have had the supreme satisfaction of having played the man's part—working shoulder to shoulder with other men giving every ounce they've got. And there is no higher incentive nor richer reward for human endeavor.

THE RADIO MANUFACTURER AND THE PROGRAM DIRECTOR[1]

H. A. BELLOWS

Mr. Bellows, a former member of the Federal Radio Commission, is Manager of Radio Station WCCO, St. Paul-Minneapolis. This speech was given before the midwinter meeting of the Radio Division of the National Electrical Manufacturers' Association, Chicago, Nov. 30, 1927.

My first thought in coming before such a gathering of radio manufacturers probably ought to be one of apology for being here under false pretenses. When I received your very flattering invitation, I was a member of the Federal Radio Commission, and so could feel that whether anything I had to say was intrinsically worth while or not, it had at least the dignifying mantle of authority to hide its bare bones. But the more I think of it, gentlemen, the more I am inclined to believe that I have a better right to a place among you now, as a broadcaster, than I could possibly have had as a commissioner.

I believe that a practical broadcaster—not a broadcast engineer, but a man who plans programs and sometimes sells them to commercial clients, who selects artists, writes continuities, and occasionally gets up his courage even to face the microphone as an announcer—may have something of genuine value to tell you.

A Worthless Commodity

I do not need to remind you gentlemen that you are all engaged in manufacturing a commodity which of itself is entirely worthless. The finest radio receiving set in the world is no better than the broadcasting which comes within its range. You cannot drive even a Rolls-Royce comfortably over a bad road, and that is exactly what I think of when I hear a supremely efficient and beautifully toned receiving set bringing in a program of vilely played, badly broadcast and atrociously announced jazz music.

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[1] By permission of the author.

No Longer a Novelty

Radio broadcasting is the newest of our sources of public entertainment, and yet already the novelty of it has completely worn off. Listening for distant stations may be amusing, but it is no longer thrilling. The fan who used to be in ecstasy for a week because one night he heard Los Angeles, now merely grumbles because one night he could not hear Los Angeles. The radio fan, far from being grateful for what he gets without material cost to himself, is generally indignant because he cannot get more—like the listener in Iowa, which, as you know, is bristling with radio stations, who wrote to me saying that the Commission had utterly ruined radio throughout the country because there was cross-talk on his favorite station, which happened to be in Detroit, Michigan.

Shorn of its novelty, radio broadcasting must increasingly depend on the inherent value and artistic excellence of the service which it gives to the listener. The present trouble, as I pointed out in a speech which I would have delivered before your distinguished body last June at Virginia Hot Springs if I had been able to get there, is that in one direction radio broadcasting has already gone just as far as it possibly can. In the field of music, no greater artists, no finer orchestras, no more brilliant execution, can possibly be found than have already been heard. And the public, or at least a section of it, is showing signs of boredom. The program which last year everybody applauded is this year received with the damnation of faint praise.

You do not have to be told what would happen to the radio manufacturing industry if the public should ever become really bored with broadcast programs. I do not think this is likely to occur, but certainly it is something you must watch for. And, from the opposite angle, what is it that keeps millions of people who are perfectly well able to afford radio sets from buying them? Nothing in the world but the feeling that the program service which a radio set would bring them is not, after all, very interesting. A steady improvement in broadcast programs is the key alike to an enlarged demand for receiving sets and to the maintenance of interest, and consequently of buying, among those who already have such equipment.

Better Program Presentation

This improvement, in which all of you are vitally concerned, must, I believe, follow two distinct lines. One of them relates to the entertainment feature of broadcasting, which necessarily consists very largely of music. I have said that we cannot hope to improve materially on the present quality of musical performance, but I am absolutely convinced that a good radio musical program is far more dependent on skillful presentation than on high-priced celebrities.

Let me illustrate. Last year we sold to one of our local clients the half-hour every Sunday evening immediately following what was then certainly the most remarkable radio hour on the air. We deliberately chose to follow the world's greatest artists with a program of classical and semi-classical music performed by a group of Minneapolis musicians, recruited from the ranks of the Minneapolis Symphony Orchestra.

We worked hard over that series; it had a continuity running through the whole season, and each program had a definite and closely woven continuity of its own. The announcer was just as much a part of the *ensemble* as the first violin or the flutist. And what happened? The listeners who tuned in for the magnificent network program stayed with us for hours, and hundreds of them took the trouble to tell us that they were proud of such a demonstration of what the Northwest could do.

Creating a New Art

What we broadcasters must do, if you gentlemen are to continue to make an honest living, is to create a new art. Up to now you have gone too fast for us—you who have developed the radio receiving set to its present marvelous efficiency, and you who have given to the broadcasting transmitter enormous power combined with the sensitive accuracy of a tuning-fork. We have come lumbering along far in the rear, with just about the stock of ideas which had already gone far toward emptying the concert halls.

If we put on a studio program, the chances are that it is modeled closely after the good old recital, for which the tickets had to be given away in order to secure an audience. If we pick up a dinner concert or dance program, the music is arranged and played for the few scores of guests actually present in the dining room or hall, with little thought for the thousands in the radio audience.

Service of the Network

I do not mean that all radio programs are like this. A good deal has been done, above all by the networks, to create programs which have real individuality. The network people modestly attribute much of their success to the array of talent available in New York and Chicago, but I don't think I agree with them. I believe that the best of the network programs owe their excellence chiefly to the fact that they are planned and produced by men and women of intelligence, with the gift of showmanship, and with some degree of musical and literary culture, and that they are announced by men who see in the art of radio announcing something more than sideshow barking or the calling of trains in a railroad station.

There is, however, an element of danger even in the best network programs. Imagine a newspaper with nothing but press service and syndicated news—no reports of local events, no front-page features by the star reporter, no pictures of home-town celebrities. That is just about the status of a radio station which relies wholly on chain programs, and when the local programs are markedly inferior to those supplied by the network, the situation is even worse. The radio audience wants its outstanding local stations to represent adequately their home interests. When our own station, for instance, broadcasts a special radio concert by the Minneapolis Symphony Orchestra, the enthusiasm aroused throughout the entire Northwest far exceeds any possible reaction to a distant program.

Better Local Programs

I am not greatly worried about the future improvement of network programs, though I feel that as yet even the networks have a long distance to go in the development of this new art. What you, as radio manufacturers, urgently need is a general and very great improvement in the quality of the local musical programs presented by the representative broadcasting stations. What this means is not, as a rule, better musical talent, but more intelligent management, better showmanship, more originality in presentation, and better announcing.

I believe that your organization could well organize a special committee for the definite purpose of helping broadcasting stations to improve their local programs. It is perfectly amazing, and rather disheartening, to see how little most of the broadcasters know about methods other than their own. Time and again, when broadcasters appear as witnesses before the Federal Radio Commission, and are asked if they have ever heard the programs of stations other than their own, they testify that they are so busy running their own stations that they have no time to listen to anybody else. Such a committee as I have in mind could act as a clearing house for suggestions, and could undoubtedly give very useful advice in that most perplexing problem of so many broadcasters—the sale of commercial time.

Commercial Programs

I am not going into this matter of commercial radio programs except to say that the maintenance of good programs depends absolutely and solely on the ability of broadcasting to pay for itself. The return may be direct, through cash sales of time, or indirect, through goodwill accruing to the station owner or through the sale of products dependent on broadcasting, but in any case the fundamental problem is the same. Broadcasting must pay, or it will cease to exist.

My own belief is that the element of good-will acquired by merely owning and operating a broadcasting station is far less profitable than the effective use of commercial programs. Our company, for example, owns and operates a station, and also buys time for commercial programs on other stations, and I am convinced that we get far more real advertising value out of the half hour a week during which our own station takes our own program than we do out of all the remaining hours which make up the balance of our broadcasting schedule.

I am not asking you, as radio manufacturers, necessarily to buy time for commercial broadcast programs, but I am suggesting that, in your own interests, you ought to cooperate with the broadcasters in helping them to develop their own commercial business. The special committee which I have suggested could help greatly in clarifying commercial practice in this respect. How should accounts be solicited? How should rates be fixed? How should the normal coverage of a broadcasting station be estimated? What type of commercial announcements should be used, and how should they be introduced? All these matters, in the long run, are bound to be reflected in the public's demand for radio receiving equipment, and for that reason they are quite as much your business as that of the broadcasters.

Radio As a Necessity

I suggested that the necessary improvement in broadcasting must follow two distinct lines, one of them being better presentation of musical programs. The other is, I think, still more important. Look for a moment at the history of the automobile. For years the automobile was a luxury, and its market was limited to those who felt they could afford luxuries of a rather costly nature. The thing that has made the automobile business what it is today is the conversion of a luxury into a necessity. People who would never own a single car as a luxury now own two or three because they regard them as absolute necessities, since our entire mode of living has readjusted itself to this new type of transportation.

The real future of radio reception lies in a similar conversion of broadcasting service from a luxury into a necessity. This can never be done by programs of musical entertainment alone. You can never persuade the mass of the people that they *must* be able to hear the New York Symphony Orchestra once a week. You can come nearer it with reports of baseball and football games and of boxing matches. The stations in the farm belt of the Middle West have done it admirably, for a part of their audience, with their market reports. For the people in the cities this service feature of radio—this creation of a new necessity—is still largely in the embryonic stage.

Creating New Needs

Of course I like to get letters praising our musical programs—we all do—but what I really value is the letter which tells me that thanks to our market service some farmer up in North Dakota has saved two hundred dollars on a shipment of wheat, or the letter saying that some family in Minneapolis has come to find our morning comment on the day's news just as essential a part of the day's routine as the morning newspaper.

Here, I believe, is where your organization can do its most valuable and effective work in connection with broadcasting. Can we develop some form of centralized teaching so that radio will establish itself in all our schools? Can we cooperate with the great news agencies so that, without competing with the newspapers, radio can be made a dependable and instantaneous means for sending out news flashes? Can we make broadcasting a legitimate agency for communicating between our governing bodies—national, state and municipal—and the people who pay the taxes? What, in a word, can we do to make radio a necessity?

Once again, let me cite an illustration. You all know the horrible tedium of civic association annual banquets—the indigestible food, the entertainment half drowned out by clattering waiters, and the dreary reports. We are trying the experiment of holding such an annual meeting by radio. The members of the civic association in question are being cordially invited to dine at home, to listen to reports carefully boiled down, and to do the necessary voting at the close of the meeting by mail.

"Radio a necessity, not a luxury." This, I believe is the solution of the future of the radio industry, and it is for you to take a large and active part in bringing it about. Constantly improving network service will help, but it will not be enough. The broadcasting stations must vastly strengthen their local programs, above all in the matter of the type of local service which carries radio out of the field of mere entertainment and into that of household necessity. In this work it is emphatically up to you to help, not altruistically, not benevolently, but because you need better broadcasting in order to develop your own manufacturing possibilities.

And so I urge the Radio Division of the National Electrical Manufacturers Association to recognize that the problems of radio broadcasting and reception are not exclusively technical; that in their solution the engineer and the artist must work hand in hand, and that when you devote constructive thought and organized effort to the creation of better broadcast programs, you are working toward the goal which ought to be clearly seen by every branch of the radio industry: "Radio not a luxury, but a necessity."

REACH FOR A FUTURE INSTEAD OF A PAST[1]

ERNEST N. SMITH

Mr. Smith, Executive Vice-President of the American Automobile Association, delivered this address at the fifth annual meeting of the A.A.A. Motor Club Executives, Mar. 21, 1929, at Washington, D. C.

Mr. Morse and Friends: I think this is the first time in five years that I have addressed you from notes. I rather felt that we are growing so rapidly that anything I might prepare on Wednesday would be out of date on Thursday and that therefore I had better collect my ideas as late as possible on Thursday morning.

There are some matters that I call to your attention this morning because I believe the motor clubs, perhaps unknowingly, are approaching a crisis in their careers. I believe it is a crisis that can be met. I believe it is a crisis that can be met by the club with 75,000 members as well as by the club with 1,000 members. I see nothing in the situation that is detrimental to our future progress, but I do see many services which I think our clubs will have to adopt as new services in the next two or three years. In speaking to you about reaching for a future instead of a past, I am not using an original phrase but an adapted phrase, and I want to present to you some things that I believe are fairly astonishing in the way of criticism of our work.

It is my sincere belief that if the clubs affiliated with the A. A. A. continue during the next five years only what they are doing today there will not be one hundred clubs in this country worthy of the name, and the automobile club movement will have gone the way of the stage-coach and the canal boat. The men whom I have the honor of addressing today have it within their power to develop our services and our activities until they become the marvel of the world of organized effort and represent a federation of clubs 5,000,000 members strong.

Our clubs stand today at a crisis in their careers. I mean that the American public is demanding a new type of transportation service and if we do not care to furnish it other organizations that are entering our field will do so.

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[1] By permission of the author.

I am aware of an increasing enthusiasm among ourselves about our work, our seemingly splendid growth, our swelling importance. These are pleasant things to ponder upon, but the people of this world do not spend as much time regarding these things as we like to think they do. We can gain that recognition if we will, but it needs the highest degree of group action to do so, and the maximum of that condition does not obtain among us yet.

Our Field Has Been Invaded

Consider our part for a moment. In the early years of our existence we concentrated upon the building of good roads. Then came Federal aid and state highway commissions and the cause of good roads was largely taken out of our hands.

Then we began signing roads until the authorities took upon themselves in increasing measure that task.

Then for some years we were the only ones who could give road directions and good maps. Today every oil station and hotel and garage has maps, such as they are.

And so our field has been constantly invaded and no doubt properly so. Our possible influence has been lessened by these conditions, yet there is not the slightest cause for alarm if we are vigilant about these situations and alive to changing conditions and will stand together in the development of modern services through a common appeal and persistent group action.

To give you an idea of the scant recognition given our services by people who ought to be better informed I quote now from an article written by one of the most distinguished advertising men in the United States writing in one of our greatest magazines, *The Atlantic Monthly.*

In making a plea for the adoption of a great good roads program he says in part:

> A factor in bringing about any reform is public opinion, and public opinion is something that can be created.
>
> Including not only manufacturers and workmen, but also retail dealers and their salesmen, garage employees, professional drivers, the gas and oil industry, and workers in accessory lines created and maintained by the automobile, four million people are supported by the motor industry. Four million people are a large fraction of the United States. With their dependents they comprise one-seventh of the population. Four million people whose minds are directed toward one end can sway the nation. Less than that number have elected a president. Here is ready a magnificent lobby of gigantic proportions with a laudable ob-

ject. The thing is to organize it, mobilize it, and make it felt in Washington and elsewhere until a road program is adopted which will lead to the best system of highways in the world.

Is it not staggering to our pride to have this man suggest organizing the manufacturers and their employees to get good roads? But let him continue:

Four million people have jobs at stake. Alfred Sloan can speak out with confidence of a greater public opinion behind him than Admiral Plunkett ever had. There are more car owners than there are American Legionaires and Daughters of the American Revolution put together. Let the leaders of the motor industry speak for more and better roads, a comprehensive plan, and national supervision. Let them organize the four million workers and the twenty million car owners in a drive for a place to drive. After all, we need roads at least as much as we need wars, but we now spend two and a half dollars for preparedness for every dollar for roads.

He tells us this about touring abroad!

I can find the way more easily, for one thing, and the things I want to see are more accessible, owing to perfect maps and an intelligent system of road marking.

SETTING ASIDE MOTOR CLUBS

We should take the marking of our roads out of the hands of automobile clubs, local selectmen and highway commissioners, advertisers, and others, each with different ideas which, however good in themselves, tend to produce confusion rather than uniformity.

After my experience in driving over French roads I am led to lament the absence of good road maps in our country. For France, and indeed for most of Europe, there are road maps so simple, so ingenious, and so efficient that one wonders why in our country, with its car to every five and one-tenth inhabitants, its manufacturers cudgeling their brains for new and effective ways to advertise them, nothing so good has been evolved as the Cartes Michelin. These maps are on the scale of two kilometres to a centimetre—say, four miles to the inch. Every road is given; its number, class, distances, width, paving, elevation, grades, and how it enters and leaves towns and cities. Towns and cities are shown in their actual shape as if seen from an airplane, and not represented by the silly circles inherited from Monteith's Geography, and the best way through them is clearly marked. All land marks are indicated—rivers, canals, mountains, passes, railroads, tunnels. No map maker in our country has yet grasped the vital fact that, in order to be sure of the right road, all the wrong roads must be shown. But these maps reveal their greatness when they depart from utilitarianism and point the way to beauty. A road that is continuously picturesque is edged with green, and those high spots where it is imperative to stop and look are recognized by a fan-shaped device, the spread rays opening in the general direction of the view. Everything worth seeing is on the map, every peak, gorge, grotto, church, calvary, chateau, ruin, barrow, cromlech, or cascade, as well as golf links, polo fields, race tracks, cemeteries, custom houses, and ferries. These maps are as full of details as one of Hogarth's crowded prints.

An Astonishing Suggestion

Now listen to his astonishing suggestions:

> According to Hilaire Belloc, no country approaches France on road maps. The Cartes Michelin offer a hint to General Motors or Standard Oil as to how to render a similar service to their own country. They have already inaugurated an excellent service which motorists in this country will use with ever-increasing satisfaction.

Here is a man, Mr. Calkins, a well-known, substantial citizen of the United States, writing in this way. Now to a certain extent that gentleman had his different troubles abroad because, he says, motoring is a great pursuit for different men. That man unquestionably has never traveled in this country outside of, perhaps, the New England States and New York. I have been over the same roads in France he has been over. He does not know what he is talking about so far as the practical application of our problem is concerned. But here is a distinguished citizen, nevertheless, writing in one of the greatest magazines in America, and telling the American public that General Motors and the Standard Oil Company ought to render the services which our clubs have been trying to render for the past twenty-five years. He apparently never took the trouble to inquire what they are doing. That cannot be helped. It represents the state of the public mind. Yet there are men in our audience here today who will say that we do not need to advertise. What a futile gesture for them to make if we expect to grow. We have pride in what we are doing ourselves and forget there are millions of people in this country who yet do not know what we stand for and what we can accomplish.

This writer has not brought out in a fair statement why we have to issue different types of maps in America which in the aggregate give practically all the information that he finds on one map in France. If he had been fair he would have brought out the fact that the law in France prohibits the closing of any road and the establishment of any detours, while in America we have to get out maps every two weeks because roads are closed so frequently, and a detour of 20 miles is not at all uncommon. I cite that as just one instance of the situation, because in France, when they are reconstructing a road—and bear in mind the roads there were originally laid out by Napoleon in straight lines and for military purposes and the map used in Napoleon's time is good today so far as the main highways are concerned—the contractor is required to pave one side of it at a time and to keep the other side open for traffic.

Thus does Mr. Calkins settle the motorists' problem in this country. Should we condemn him as an unintelligent, irascible writer? We should not. We should take his lesson to heart.

SERVICE AND STANDARDIZATION

What does he plead for? He pleads for service and standardization, both of which are the results of group action. We do not even present a united front to this country in the matter of emblems. We still have clubs that carry their local emblems which are wholly unintelligible outside of their local territory. This may represent pride, but it does not represent progress. We still have clubs that peddle oil station maps, thus becoming the distributing service of a private concern and keeping themselves in their travel class.

One of the most astonishing things that I encountered was the unity of the organized motor movement abroad. To use France as an example, I found that when we met a bicyclist upon the road he wore the emblem of the Touring Club of France. When we passed a canoe in the canals of southern France, the canoe or yacht or boat flew the emblem of the Touring Club of France. When we met a motorcyclist with a side-car or a single car, on the handle-bars was the emblem of the Touring Club of France. When we passed a pedestrian in the Alps, a man climbing over the mountains, on the back of his knapsack was the emblem of the Touring Club of France. When we saw an airplane, we saw upon the fuselage the emblem of the Touring Club of France. At no place that we saw transportation, outside of the railroads, did they fail to have that significant emblem, which carried so much weight among motorists and among travelers in Europe that the French Government declares its motor club a public utility. How far we are from that point in this country!

I wonder sometimes if our mental outlook on our work is as it should be. Our dues are too low. Our clubs have not yet learned their lesson in that respect. In all my experience in motor club work I have never yet had a man come to me and say, "How fine a map or book can you make?" Always it is, "How cheaply can you turn it out?"

OUR GENERAL WEAKNESS

If I should make one comment upon our general weakness, I should say that too many of us try to give too little, that too many of us are looking for the cheapest thing to do and not the thing that will make us the most friends and members. We have been rendering too few services and, as I said, in many instances our dues are too low.

Some of our clubs have not learned the lesson that the American public wants Service and is willing to pay even an unreasonable price to get it. Those, however, who expect to give the same old services at a higher price are doomed to disappointment.

When I urge you to the consideration of these matters and plead for group action I do not do it at the expense of your independence, your originality or your freedom. Let me illustrate my point by quoting from the address of a man who built the greatest organization of its kind in the world, and who recently died. He said to his members at an annual meeting:

> This is a co-operative organization, the greatest in the world, and esprit de corps is essential to success. Against great odds, and by the exercise of infinite patience, we have builded a great and most useful institution—one of incalculable value, in my belief, to the American theory of government. And I hope no one will challenge my firm conviction that our American theory of government is far and away the best ever devised by the sons of men, not perfect, I grant you, but the best existent.
>
> I regard the Associated Press as a public duty and every public duty is a privilege. If it were not so I should never have been with you.
>
> Incidentally, the Associated Press is an opportunity for you to make money. But if money-getting and public service may be joined hand in hand, as I think they have been in this institution, then you have been doubly blest.

So said Melville Stone, the famous General Manager of the Associated Press. The Associated Press furnishes a worldwide service to perhaps as many newspapers as we have clubs. The Associated Press gathers the best and passes it along. Each member journal stands by the Associated Press and the Associated Press stands by the member journal. A standardized, truthful, timely and efficient service is rendered. It doesn't make any difference to the Associated Press whether the journal member is Republican or Democrat, morning or evening, conservative or sensational, it has available a remarkable service which helps to build a better paper.

In exactly the same manner and in precisely the same spirit the A. A. A. assists its individual affiliated clubs.

We do not care whether the members of your board of directors are Protestant or Catholic. We do not care whether you live in a small farming community or in a great city. We do not care whether you are a tremendously large club or a small club. We care what your local problems are and we will help you to solve them without infringing upon your local territory, but always with the thought that the national office is to build as marvelous an organization for your service as human beings and cooperation can devise.

New Developments in Our Work

So we come to the point where I am recommending to you certain specific developments in our club work which I think should be put into effect at the earliest possible moment.

They may appear to be radical. I am sure that some of you may say at first that some of my suggestions have no place in motor club work. I claim, however, that the time has long since passed when one may clearly define the channels of commercial effort and say that any business should or should not sell a certain commodity or indulge in any specific activity. Why, what is happening today?

An automobile manufacturer is making refrigerators.

Drug-stores are selling baseball bats, balls and gloves.

Railroad systems are using aeroplanes.

Street-car companies are running taxicabs.

Mail order houses are opening retail stores.

Photographs are sent by telephone.

Yesterday's happenings at the South Pole appear in tomorrow morning's paper.

Women invade cigar stores and barber shops.

Southern States go Republican.

The world moves on at a speed unprophesied, and in a manner unanticipated.

And so the motor club world must change.

There is no question in my mind but what we must become travel organizations instead of motoring organizations. Fighting on your behalf, I do not recede an inch from the position that we must continue to give every service that we give today, but give it more efficiently and in greater measure, both as regards personal service and civic activity.

The successful clubs must give a finer routing service than can be given by any agency in their territory. They should have a legal service that amply advises the motorist. They should have a safety program that covers the streets and the schools. They should have a publicity service that speaks as intimately and as often to their public as you do to your family.

Retaining all these things, we must yet build new services which will cover Travel in its widest sense. For years we have confined ourselves to motor travel while our members have been using other means of transportation as well. Why should not *we* give all the information that is needed for *any kind of travel?* For us a new day opens and a new responsibility appears in the all-inclusive tour, in the handling of which we must perfect ourselves.

Forming Travel Clubs

In the city of one of our best clubs in Ohio a travel club was recently formed, the members of which subscribe to the *National Travel Magazine.* There are 300 members in that club. They are eligible to the club because they have either been south of the Equator or have crossed one ocean. That organization, so I am told, is growing very rapidly. The members have monthly meetings to discuss travel. My impression is that our motor club in that town has not had any meeting of its membership in five years.

Let me describe to you the A. A. A. Travel Organization of tomorrow as I visualize it. The early morning caller wants to catch the air express for Chicago. You tell him what time the plane leaves and you sell him a ticket. The next man has his own plane and wants you to map out his air route to Seattle. You turn at once to your stock of air route maps and complete his routing in five minutes. The A. A. A., in your behalf, is working out with the Government the details of handling its strip air maps and hopes shortly to be in a position to supply you air routes covering the country.

In this connection you will hear at our luncheon today the distinguished Assistant Secretary of Commerce in charge of Aeronautics, who will tell you more of this program.

Your next visitor wishes to vacation by traveling by bus across the continent. You have available all the bus schedules in your territory and the list of through routes and you sell him his bus ticket and sleeper on a night Pullman of the highway. There are 40,000 more miles of regular bus lines in the country than there are of railroad lines. Our bus division will work these things out for you at the earliest possible moment.

Your next visitor, strange as it may seem, is a motorist who wishes you to plan a trip for himself and his family. It seems fairly simple as you offer him some strip maps and a tour book. But not so fast. This man wants a really modern all-inclusive tour prepared for himself and family. It will take him two days to motor to Detroit and he wants to make hotel reservations en route. At Detroit he wishes to board the steamer with his car and family and sail to Buffalo. Thence he wants to motor to Quebec where he will leave his car and take the round-trip cruise down the St. Lawrence. Returning from that he wishes to drive to New York and there take the steamer to France for a six weeks' tour of Europe. Now, through the services which we are now engaged in perfecting any well equipped A. A. A. motor club will be able to handle that tour in its entirety, making every reservation, and supplying every ticket.

Building New Club Services

Remember, I am outlining to you the type of motor club which I think we must try to build from now on. We have been experimenting with some of these things about which I have been telling you in our District of Columbia club, and we find they have worked out most successfully. Hitherto when a person wanted to travel upon the Great Lakes, you referred him to the Great Lakes Steamship Companies and told him he would have to get a steamship ticket from their office, and not only that, but he would have to go to the steamship ticket office even to get the time schedule. For a while we were not able even to give sailing dates or tell how long the journey would take. But in our District of Columbia division this year we are giving much of this information.

Early in April there will meet with us in Washington, at the suggestion of the gentlemen concerned, the Inland Waterways Association of America, to discuss a plan for the handling of our people on the boats of the Great Lakes, the Hudson River, the St. Lawrence, the Potomac, Chesapeake Bay and the Atlantic Coast, and for the handling of steamship tickets in all the offices of the American Automobile Association. I think we shall be able to work out a type of order which will be sent to you from national headquarters and which will be accepted by the steamship companies as a definite order upon them for service.

One of the biggest steamship companies on the Great Lakes has gone so far as to say that if we will work out a plan, they will set aside on their steamers a block of staterooms, reserving them exclusively for A. A. A. members and holding them subject to call from our members up to a certain hour before the steamer sails.

Our clubs will carry travel checks and national headquarters will be able to work out the plan for you. Thousands of motorists have had to go to some other place, to the bank or the American Express Company's offices, in order to get their travel funds in the proper kind of currency for travel purposes. There is no reason in the world why you should not be able to supply American Express checks too.

We are trying out in Washington an accident insurance plan similar to the type offered by the railroads, which does not take the place of insurance, but really adds to it. On the other hand, recalling how many accidents there are on the highways of the country, we realize that motorists are now somewhat disturbed over the fact that if they invite anyone to go with them for a ride and that person or any persons thus invited are injured, the owner of the car is responsible and is liable for damages because of the injuries to his guests. By the purchase of a little additional insurance, at the cost of a very few dollars, which insurance ought to be sold over the counters of the motor clubs, you can insure yourself and all of your guests not against accident, but against damages which might be assessed against you because of an accident.

New Protective Features

We are trying at the present time in Washington to work out the details of a plan for baggage insurance. We have travel organizations over the country which are selling thousands of dollars' worth of baggage insurance. It is a new type of insurance that is being developed. No one goes abroad these days without insuring his baggage, and those who go abroad are getting into the habit of insuring their baggage in America. After you have equipped your prospective members with everything else they need, then you should be in a position to furnish them insurance for a thousand dollars' worth of baggage or five hundred dollars' worth of baggage in addition to any other insurance they may carry.

You are aware of the fact that we have been studying and planning to set up a transatlantic service. We have now perfected arrangements with steamship agencies so that at the present time the American Automobile Association has completed contracts with every transatlantic line but one, so that we may issue steamship tickets to our members who are going abroad. Perhaps you think that is a slight service because so few people are going abroad, but we know that last year nearly half a million Americans traveled abroad, and on Saturdays during the summer season 10,000 Americans sail out of New York Harbor for Europe, each one of whom is going to spend at least one thousand dollars abroad.

Going abroad last year I met one of the most distinguished manufacturers from a city where we have one of our largest clubs. He told me he had turned his car over to the steamship company and they had handled all the details. I said, "Why did you not get the motor club to attend to it in your territory?" He said, "I never thought of it. I did not know the motor club attended to such things." He went to England and, because he did not have his papers properly drawn up, he was held up in Great Britain. He then applied to the Automobile Association of England. The Secretary met him and said, "Did you not know that the American Automobile Association would have handled all this for you?" He said, "That is what Mr. Smith told me on the steamer. But I am tied up absolutely in this matter and I cannot move until you help me out. Help me out, but for God's sake don't tell Ernest Smith."

He was so well pleased with the service which he received abroad that he took out a life membership in the Automobile Association of England and gave them $100 for it. Money was nothing to him. He already had his membership in the French club, because they had rendered him services which he thought he could not get in this country. When I heard about his experience after my return home, I notified the club where he lived and discovered to our astonishment that he was not even a member of his local club. He is now!

The transatlantic steamship companies told us that they will not grant agencies to individual clubs. They will not do it, they said, because it would jeopardize the large travel agencies which they have set up all over the United States. But we have pressed to a successful conclusion our claim that we are entitled to handle the all-inclusive tour, and if an A. A. A. member wants to travel under our auspices he has that right.

We discovered that Cook and the American Express Company have arrangements with the big steamers crossing the Atlantic and the Pacific in exactly the same way that theater ticket agencies in New York subscribe for blocks of seats to enable them to serve their clients. With thousands of our members going abroad annually, if we can handle all of their services through the one source, we shall be able to get accommodations for our members which hitherto they have had difficulty in securing for themselves unless they went to a travel agency.

The Public Likes It

While we are proceeding very carefully with the setting up of that service in your behalf, nevertheless we have evidences of the fact that the public likes it. Our foreign business so far this year is just four times what it was last year because the public has found that they can come to us for the all-inclusive tour.

It was an amazing thing to walk into a Cook's place in Europe and find out that not only do all their offices make all the reservations for railroad trains, automobile trips and steamship trips, but they would get your theater tickets in any of the larger cities of Europe ten days before you left Paris. They made arrangements for camels for the desert trip, for every kind of motor trip, for your hotel accommodations—in fact, for practically everything you might require. They took entire charge of your transportation and provided for your pleasure and entertainment.

We have arrangements with sixteen or seventeen European organizations which make it possible for you to send your members abroad now with a minimum expense and a certainty of safety and comfort and convenience of travel. It has been no easy task to arrange these matters, to break down the opposition of some of the old royal clubs of Europe, but we have kept at it until we have finally forced our way in and perfected this type of service. Why? Not because an unusual number of our people are going abroad, but because we are helping you to develop the all-inclusive tour which we think is so effectual in the further progress of the motor club.

We have issued a book in six languages which your members can carry abroad. We issued our own book because we have found that most books of that nature do not give technical terms. If the rear hub cap of your car comes off and you want to get in touch with the proper foreign agency, the average foreign travel book will not tell you how to call for the left rear hub cap for a Buick automobile. The entire automobile has been dissected and put in that book in terms which can be understood. To that extent we have endeavored to establish our type of service. We have our representatives in twenty-three European ports to meet your members when they arrive, and I want to say that when one of your members lands in a strange country, with strange customs laws and regulations, it is extraordinarily helpful indeed to have somebody there who can untangle the situation for him and in his own language.

I have referred several times to the amount of attention involved.

To one A. A. A. motor club there came a very wealthy oil man who was a member. He read the bulletin that we had prepared with reference to foreign service. He went to his local club, but the local secretary did not know what it was all about. Nevertheless he said, "Surely I will attend to it for you." Immediately he wired us and said, "What about it? What can you do?" We wired back about a two hundred word night letter and the next day back came a telegram saying, "I am forwarding check for three thousand dollars. Please make out entire European tour for my wife and family. We are taking two cars. Arrange the complete tour." We did it, and he went abroad. One of his cars was hit and badly injured in a mountain pass in Switzerland. The insurance placed on the car took care of it, and our club representative took the injured people to the hospital. Two people in his party were killed. Every facility was given to that man all through that troublesome experience, and he came back home appreciative of the services we had rendered.

Travel Libraries

After you have supplied all the services that you can supply to a man in the motor club of the future, the club which we hope to build up tomorrow, we still think there is one further thing we can do and we expect to put it into effect in Washington within the next month or two. That is to have a travel library which you can supply to your members. I mean by that, books which you can sell. There are probably more travel books sold in the United States than of any other single type of publication, and yet hitherto, when people came to our offices and secured the desired information for a trip to Nova Scotia or Canada or the Southwest, they would go down to Brentano's, one of the large book stores here in Washington, and say, "I want a book about that particular country." Brentano would hand out whatever book they happened to have on hand to sell. We have been in communication with some of the leading book publishers of the country and they have offered to sell their travel books at the regular trade discount, which we can arrange for in behalf of our clubs. We are now experimenting in the selection of the finest type of travel library that can be sold, and we hope to be able to tell you that you can put in a travel library of from 45 to 50 books so that after you have prepared everything else for your member you can say to him, "There is a library of travel books. Here is one of the finest books on the particular country to which you intend traveling." That is just one of the little additional services which we hope to be able to put into operation in the very near future.

As I said earlier in my remarks, the motor clubs abroad have been furnishing such invaluable services and to such an extent that they have been declared public utilities. It is a matter of absolute amazement to me that the greatest motor clubs in the world are located outside of the greatest motoring country in the world. There is no real fundamental reason why it should be so. We ought to have 400,000 member clubs in this country, not in Europe. In a country not any larger than the State of New Jersey, there is no reason why in Europe they should have 275,000 members in a club where we probably would not have 10,000. Why is it? It is because, apparently, there is unity of action, there is a variety of services, there is fixity of purpose. Those clubs have invariably developed themselves until they have fifty per cent of all the motorists in their country belonging to the motor clubs. That is an astonishing condition, one which is not duplicated in this country at the present time.

In conclusion may I say that we have a purpose. We have to lift our eyes to new horizons. We have our goal. We should have five million members within the next two or three years. We should adopt all of the services which I have tried briefly to outline to you this morning and go on our way as One National Organization, with One National Program and One International Service.

PUBLIC SPEAKING AS A PUBLICITY MEDIUM[1]

PRESTON S. ARKWRIGHT

Mr. Arkwright, President of the Georgia Railway and Power Company, delivered this speech September, 1922, at the convention of the American Electric Railway Association, Chicago.

"In our day the orators lead the people." This is not original. It is a statement made by Aristotle about 2300 years ago. It could be made with equal truth by anyone in anybody's day. The only people who seem never to have understood this are business men, and this includes electric railway men, too.

You can't get them to make what they call a speech. They say they can't make one. As a matter of fact, they don't make them, and not only that—they have a contempt for anybody else that does. You'll hear them say that it's the empty dray which makes the most noise; that a man who works with his mouth can't work with his hands and brains, too.

So they've left it to the politicians and the demagogues to lead the people. You may be sure that they understand it. You never heard of anybody elected to any political office of any importance for what he did. They're elected for what they say. They have led the people to believe that the electric railway industry is their hereditary enemy and their natural prey, and have taught them to treat the street railway as "a woman, a monkey, or a walnut tree; the more you beat them the better they'll be."

It's time that the men in the business should attempt a little leading of the people themselves;—lead them to understand that the cost of the service must necessarily be paid out of the revenues; that every unnecessary burden placed upon the street railroad must, of necessity, be paid for by the car rider, and to that extent affects the quantity and quality of the service and the fare that must be charged for it.

This business cannot be run on constitutional guarantees, or on the sense of justice of members of Utility Commissions, or on injunction suits. Its success depends at last on a sympathetic understanding of its problems by the masses of the people. These same people elect the councilmen and the legislators and the public utility commissioners and the judges of the courts, too. Necessarily, the decisions of all of these are influenced by what they think the popular sentiment is. So, in order to get just treatment and fair consideration, it is essential that the people who use its service should appreciate that fair treatment of the railway is fair treatment for themselves.

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[1] By permission of the author. Reprinted from "Addresses," by Preston S. Arkwright.

There is no more effective way of explaining the street railway's problems than by getting up and speaking about them. At least the audience will hear it, and the spoken word is much more convincing than the written word. Besides that, the newspapers will carry stories of a speech made to an audience when the same matter sent them in a contributed article will be thrown in the waste basket. If you want to get newspaper publicity out of your speeches, write them first and send copies to the local newspapers to be released when the speech is delivered. They will appreciate your doing this, and they will nearly always handle them, because a speech is regarded as an act, or an event. But for Heaven's sake, after you have written it and sent a copy to the newspapers, then throw it away, because if you don't when you begin to speak you will be unable to forget, or to remember, the written speech. The consequence is, you will read it, and when you do you have already lost your audience.

Now street railway men can get up and talk about their business. They certainly know their business, or they ought to know it, and they have enthusiasm about it, or if they haven't they ought to get out of it. With knowledge and enthusiasm anyone can talk.

Try it. It will do your cause good. It will bring you into contact with your customers. It will personify the railroad to them in your own individuality. It will let them understand that the railway is run by an ordinary human being just like themselves, and not by some monster hidden away in a back office.

It will do you good also. You will learn more about the business than you knew before, and you'll learn more about your customers and acquire a more sympathetic interest in them.

If we can but lead the people into a correct understanding of the business and an appreciation that their prosperity depends on the railway's prosperity, we will have no trouble in getting just consideration from Commissioners, Legislators and Councilmen, and then we won't have any need for courts or injunctions.

This is a great deal better than to let public sentiment be crystallized against us by the orators, and at the last moment hiring professional orators to off-set them.

WOMAN'S ATTITUDE TOWARD THE BANK[1]

BESSIE Q. MOTT

Mrs. Mott, at that time Chairman of the Advisory Committee of the National Committee for Woman's Financial Education, delivered this address before the Financial Advertisers' Association meeting held in conjunction with the convention of the International Advertising Association, Detroit, 1928.

Mr. Chairman and Members of the Financial Advertisers' Group:

I keenly appreciate the opportunity that has been given me to tell you men what I, a woman, know about the situation brought about by woman's attitude toward the bank and the bank's attitude toward woman.

Woman's attitude toward the bank will take very little explaining. She misuses you and abuses you because you bankers not only invited her to do so but insisted on her doing so.

The banker's attitude toward woman today reminds me of the little newsboy who was asked by a purchaser how much he paid for his papers. "Two cents," replied the boy. "But" objected the man, "if you sell them for two cents—where's the profit?" "There ain't no profit," said the boy, "but it gives me a chance to holler all I want."

For the banker there is very little profit in the average woman's account, but it provides a topic of conversation for you when you get together. The boy should have made his papers pay, and you bankers should make your business pay—even if you have to develop some other topic of discussion that is not quite so vital at this stage in the development of American life.

Perhaps you may wonder why I say this question is vital. It is so for the reason that the control of money in this country is rapidly drifting into woman's hands, and that fact places a terrific responsibility upon financial institutions to educate woman to understand what she can do and what she should not do in the handling of the bulk of the nation's wealth.

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[1] By permission of the National Committee for Woman's Financial Education. Reprinted from the Financial Advertisers' Association *Bulletin*, October, 1928.

Some of you condemn and find fault with women wanting to "butt into" the financial field, as you express it, but let me remind you that here, as in many other instances, it was not of her own volition or choice. The spending of America's fortune has been thrust upon her.

As long as woman was the producer—as long as she wove the cloth, dipped the candles and baked the bread—man was the spender. He it was who took the basket of eggs to the market and exchanged them for the articles needed in the home. But when machinery replaced hand power, man's time and mind were needed for his development, and then man became the producer and woman the spender. She was forced to assume this responsibility in order that civilization might advance, and, while she now abuses and misuses the banks, it is imperative for the condition of good business of the American banks to educate woman in the principles of banking.

Some of you listening to me may believe that I am either an idealist or a plain fool, so I am going to give you just a few figures to prove that I am neither—that my assertions are backed by statistics which prove the necessity of education:

Eighty per cent of all monies paid in salaries of every kind is spent by woman, and she has some influence on the spending of another 10 per cent so that out of our enormous payroll man only controls 5 per cent.

Again—the life of woman is longer than that of man, so that our immense fortunes are gradually drifting toward her, and in many instances this includes the management and control of the businesses in which the fortunes are produced and tied up.

Eighty per cent of all accounts in the mutual savings banks are in women's names, so she has control of money for investment, and it has been stated that on some of the heaviest days in the recent activities on the New York Stock Exchange 20 per cent of the trading was by or for women.

Backing up this is the statement that $700,000,000 in fraudulent stock was sold to women last year, and in tracing the cause we find it first in the fact that they did not know where to turn for advice; secondly in the further fact that men with almost super-personalities call upon these women who feel flattered to think they are important enough to be called upon by a financial organization; and finally that woman is not accustomed to being sold—she is used to and trained in buying.

Life insurance is so rapidly dissipated that it seems hardly worth while for a man to carry insurance—unless woman can be educated to invest in a life insurance trust.

Many banks have spent a great deal of money in attempts at educational work, and much of it is very good. Yet, in going over your past records, many of you will say: "I have spent a great deal of money on women, and what has it brought me? A lot of little accounts that reduce the profits instead of increasing them." True—yet you do not want to change this condition any more than women do. We are both looking for a remedy. What is it? I offer the following suggestions for your consideration, your commendation, or your condemnation.

My first suggestion is that every bank should have some form of household budget. Many of you will tell me that you have tried it, and that it did not work. My answer to that is simply that you tried to use a plan that was too perfect and too difficult; that required too much time for the average woman to spare.

You all advertise: "If you have a financial problem, come to us and we will help you." The most important financial problem of America is to teach people how to live within their incomes, which can only be done by planned spending. I have not time to go into the details of such a plan, but when department stores all over the country can successfully show people how to spend on a budget plan, surely the banks can use a similar system to advantage. They should back public sentiment to get our women's colleges to teach the fundamental principles of finance.

Send a woman who talks the language of her audience to all women's clubs, church organizations, women's federated labor groups and parent-teacher associations.

The spoken word is more effective than the written one, but my report from many organizations is to the effect that when they ask for a speaker on banking, a man is sent, and women do not like to question him, because they hate to make fools of themselves or to show their ignorance before a man. Some one from outside the bank will inspire more confidence in the people because they realize that the speaker has no axe to grind and is not trying to produce business.

Do not try to sell the man the idea that a trusteeship is a good thing for his wife. Sell her the idea that she should insist on her husband making the bank her trustee. It will be a harder task—but you will have fewer cancellations.

Every bank should have a woman executive. Let me emphasize the term—woman executive, *not* a woman's department. Women's departments as such are in most cases failures and cause the banks unnecessary expenditure, but a woman executive has a definite, distinct and productive place.

Many of you will disagree with me, the reason for which is that when you have made the experiment and found it fail, you will also find that a man picked the woman to run the woman's department. And—the woman who is a leader among women is usually not the type that a man would select.

Others will tell me that a woman much prefers to go to a man on financial problems—to which I reply that there are two types of women; the woman who has no confidence in herself and therefore none in other women, and the woman who through the confidence born of education and experience prefers to trust a woman. We even find men going to women in banks, if they have a problem involving much detail.

When advertising in newspapers to women do not use the financial page, because that page is less read by women than any other.

Finally remember that when we endorse a check: "From your loving wife, Helen"; when we send a check on the same account to cover an overdraft; when you tell us that we have coupon money due, and we ask how much we owe you—these things are because *you* have failed to educate us properly.

The department stores are crying: "Women won't buy unless we put on a sale!" Who taught us to wait for sales? The department stores. Banks are complaining: "Women's accounts are so active, we have to operate at a loss!" Who taught us to use checks to pay every bill?

The department stores and the banks are blaming women for doing the things they taught her to do. Therefore—correct your mistakes through an educational campaign that will lead woman to realize the proper uses of your institutions—and in return woman's business will make money for your stockholders.

DIRECT MAIL—THE THIRD LEG OF THE STOOL [1]

HARRY M. CARROLL

Mr. Carroll is Advertising Manager of the Hyatt Roller Bearing Company. He delivered this talk before the Technical Publicity Association, New York City, Jan. 9, 1929. Colonel Willard Chevalier, in the talk which follows this one, replied to Mr. Carroll.

Mr. Chairman, Fellow Members of the T. P. A. and Guests: When Mr. Miller asked me to act as chief executioner, or, I beg your pardon, vivisectionist, at this clinic this evening, I was rather apprehensive, and my misgivings were based on two counts. First, that a prophet is without fame in his own home town, and second, that fools will persist in crashing gates that angels fear to enter.

However, on the first score I soon had my fears allayed, for I discovered that the speakers at your two previous meetings were local talent and were accorded a very nice reception, especially the first gentleman. On the second score I still feel a bittle bit miscast. I didn't attend either of those two previous meetings, but from my good friends I learned that a considerable amount of fireworks took place at both of them.

Personally, I am not much of a hand at pyrotechnics. I am a pretty peaceful sort of individual, as many of the space salesmen present here this evening will attest. They come over to see me, get their little thirteen pages or twenty-six pages (mostly thirteen) and go on their merry way smiling. However, tonight they are going to find me in an entirely different role, not that of a genial space man, but an exponent of direct mail, in which it is my happy privilege to lead the discussion this evening.

(Chart.) At the outset, I think we had better explain who the patient is that so courageously volunteered to give his life to this clinic this evening. Hyatt Roller Bearing is the poor patient.

(Chart.) Antifriction bearings, under which heading Hyatt Roller Bearings come, are very technical articles. They are not sold like so many nuts and bolts and gears that go to make up a finished machine, but are an inbuilt product. It is a long-drawn proposition, from the time our salesman makes the first call until he submits blueprints, studies the machine, and finds out where the bearings will function. Then just about the time we think we are going to get the order, they say, "Come out and make some tests," which is a service our engineering department renders. Then it is sometimes a year or more before they standardize on our equipment, when they do finally standardize.

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[1] By permission of the author. Reprinted from the *Proceedings* of the Technical Publicity Association, January, 1929.

(Chart.) So with a background like that, we could use the old alibi for not advertising. Most of you know it. "Our business is so different." (Laughter.) However, different as it may be, they don't come and buy Hyatt Roller Bearings from us. We still have a sales force. We have to go out and sell them just the same, so we employ salesmen.

(Chart.) We are also liberal users of space, both trade papers and national publications, and we also use direct mail. However, it is only within a comparatively few years that we have used direct mail very extensively. Perhaps the reason we didn't use it more extensively was the reason why a lot of folks don't use it. I believe it is because it is not thoroughly understood.

To our way of looking at it, advertising and selling are like a three-legged stool. The sales force is one leg, publication advertising is the second leg, and direct mail is the third leg. One leg is just as important as the other. This is a perspective drawing. I hope none of the publication men are mean enough to say we made the second leg pretty small. (Laughter.) They are all supposed to be the same length.

If an advertising and sales problem has to rest on one leg of the stool, it is pretty shaky. If it has to rest on two legs, it is still in a pretty precarious position, but when you put the three legs squarely under the stool, there is very little chance of its toppling over. So, at Hyatt, we believe in using all the legs.

(Chart.) By that I don't mean that we take our sales and advertising budget and split it up 33⅓ per cent for selling, 33⅓ per cent for direct mail, and 33⅓ per cent for publication advertising, but we try to coordinate the three and we feel that we are putting just enough in each respective unit, which I will explain as I go on.

(Chart.) To get back again to the thought of our business being so different, I would just like to elaborate a little bit here so you will better understand it. The actual users of antifriction bearings are comparatively few in number; by actual users, I mean folks who can use bearings in their own equipment or in the equipment that helps produce the things that they build.

We break those down into two classifications, known as "production accounts" and "plant accounts." Then we in turn break these accounts down into about twenty major industries. The bulk of our direct mail is done in this field (indicating left side of chart) to the actual user.

The buyers of equipment—every user of machinery, of course, is an indirect Hyatt customer. He may be a user of trucks, machine tools, oil well equipment, tractors, automobiles, or what-not. So we feel that is the big mass market. We talk to them through publication advertising. However, to get at this group we feel we have to get a little closer to them, and we feel that direct mail is going to do this job for us, reaching various officials. The *Rolling Mill Gazette* might get to Bill Jones at Bethlehem Steel and might get to Pete Brown, but to make sure we do get to them we put them on our mailing list for that particular campaign which is intended for steel-mill men.

Another thing is the thin market. We have some applications that are very prolific of business, and yet they are scattered. They might be pretty big accounts here and there. There may be twenty saleable accounts in some one major industry. We couldn't afford to use the trade paper in that particular field just to talk to those twenty men, so we feel that direct mail is going to do that job, and just how we get at those twenty and a few others will be explained.

We have a system where a certain account is called on, depending on the size, maybe every 45 days; other accounts, every 90 days; some accounts maybe only twice a year. Our salesmen, of course, would like to call on many of them more often, and they may if they happen to be in that neighborhood. Between the intermittent visits of the salesman, we want to talk to all customers some way, so we feel that our direct mail is pinch hitting for the salesmen on several of those accounts.

Direct mail reaches all. It reaches all the folks you want to reach. The publication can't reach every one of them. True, they can show you a subscription list of the best of them in a given field, but maybe one, two, three, or a half-dozen men in that given field, the decision men on your particular product, aren't on their list. You put them on your mailing list and make sure you are at least making an impression on them every Monday morning or as often as you mail to them.

(Chart.) We schedule our direct-mail advertising just as we schedule our space advertising. Maybe if more people would adopt this plan, direct mail might be on more budgets. We take certain groups at the beginning of the year and single them out and say that there will be a textile campaign, steel mill, oil well, material handling, and paper and pulp. We schedule those right through from January to December, as the case might be, and stick to that schedule as religiously as we stick to the thirteen or twenty-six pages that go out to the trade publications.

We may be a couple of days late. We don't have anybody calling us up saying their book is closing; nevertheless, we get it out within a few days because there is always another coming along. When we finish with this company, we tackle another. I just indicated a few here to show you our plan.

(Chart.) I said the reason we don't use direct mail more extensively is because we don't thoroughly understand it. I happened to discover another reason, and it is this: It takes just so much inspiration and a lot of perspiration to turn out a real direct-mail campaign. We employ about seventy-five periodicals in the national and trade field, and I maintain that it is a bigger job to get out two or three real direct-mail campaigns than it is to get out the advertising each month for those seventy-five publications, and, in a good many cases, it means thirty or forty different pieces of copy each month.

It isn't a case of getting a pretty photograph and saying that it just fits in a nice seven by ten page at the top, with a few paragraphs of copy and a signature below it. You have to dig a little deeper if you want to do the direct-mail job right. That is why I say it takes 1 per cent inspiration and maybe 99 per cent perspiration to do the job right.

(Chart.) At a recent direct-mail meeting, my good friend, E. St. Elmo Lewis, made this statement. It is worth reading and remembering: "Lack of competent analysis, knowing the market, the product and the sales conditions will ruin an otherwise fine campaign." We agree 100 per cent with the saint, and I believe all you gentlemen do, too.

Fortunately, at the Hyatt Roller Bearing plant, we have a market analysis department who certainly know their bearings and we use that market analysis department and more than use them. In fact (I see my market analysis man smiling at me now) we are on his tail all the time. One day he threatened to transfer his payroll over to us. He had other work to do. Nevertheless, we come back for more, and if you gentlemen have a market analysis department, use them for all they are worth. They might be pretty hard nuts to crack, but when you get under their skin you will find them pretty good individuals. From them we learn the sizable potential of a given industry, how far we can afford to go in our expenditure for that particular field. We learn the nomenclature of the various industries. They are in the field all the time. We sell to many industries and believe it is good business to talk to them in their own language and to call a spade or shovel by its proper name. This market analysis gang seem to be a fund of information, coming in with some new stuff every few days, and we get all we can of it.

For good copy appeal, just look over some of the market analysis reports. If you haven't a market analysis department, maybe one of those star salesmen is a pretty good fund for that information. We get wonderful copy appeals both for our direct mail and our publication advertising from them.

Whom to reach—I think that is an important thing. We say, all right, we will talk to the master mechanic in this industry. If he gets the story everything is lovely. Or, we will talk to the chief engineer. If he gets the story we are going to sell him some bearings, but from the market analysis department reports we learn that sometimes it is an organization or given industry where the president is the decision man—he is the fellow you have to reach. In another industry it may be the chief engineer. We learn all that stuff from them and use it to very good advantage.

(Chart.) I just jotted down a few little things here. This was a campaign that we got out in the textile field. I want to hurry through this and show you how we work with the market analysis department. We were all set for a nice campaign and told them we were going to do this or that, and we learned then that the best way to approach the textile field was based on folders on the flow of material through the plant, taking the preparatory equipment first, then the spinning room, the weave room, the finishing machinery, and so on. We ran through a series of these folders. Of course, we had only a few men to talk to. The decision man on each application through the plant is the treasurer at a northern mill or the agent or superintendent at a southern mill. We thought that was fine. We said, "We don't have to bother those first birds any more. We have all their thunder now."

We started on another campaign on steel mills. We said, "Those fellows told us how nice it is to run a campaign of the flow of material. Doesn't steel flow through? The raw product comes to the blast furnace, the blooms come to the rolling table, go farther on, are shaped up, loaded into cars—sure, flow of material." Fortunately, before we shot this campaign we told them what wonderful guys we were. They said, "Wait a minute. You are all wet." We said, "What's wrong? We are just practicing what you fellows preach, raw material to finished product, etc."

"Yes, but you have a different condition to contend with here. What you want is a campaign on the setup of organization."

They explained through their wonderful wisdom that the man in charge of the blast furnace is entirely independent from the electrical man, and the rolling mill man is entirely independent from the transportation crew. So, we just turned around and revamped the campaign. Some of the pieces are shown here. Not that we sent an entire campaign to the blast furnace man, another to the rolling mill man—but each piece was so designed that a little bit of the matter was of interest to the technical man, some more to the transportation man, some more to the blast furnace man, and so on.

I told you a few moments ago about our very thin markets. We couldn't afford to get out two or three or four color campaigns to a list of thirty, forty, or a hundred at the most, so we wanted something to send to those folks in the thin markets that would tell the Hyatt story in an interesting way. They might be builders, we will say, of crushers or maybe milling machinery. We couldn't very well send them a steel-mill folder, which would tell the story of Hyatt's and heavy duty, or, the next week, a textile folder. We wanted something that would be more or less general.

(Chart.) We thought we would like a house organ, then decided we didn't want one. We had three in the old days. They died a natural death. We thought of something else that would be more in tune with the times. Everybody is reading pictures. These tabloids are selling by the million copies per day, so we thought we would bring out a little tabloid of our own. This is not a monthly organ; it is an every-once-in-a-while. We get it out sometimes every two months, but we never force an issue. It is printed in genuine rotogravure. We let the boys name it. They called it the *Hyatt Rollergravure*.

In it we show interesting pictures—railroads, steam shovels, aeroplanes—all the unusual. The inference is, this man making milling machinery might find something comparable. If he doesn't, he at least gets the thought: if those bearings can stand the abuse of those seventy tons of logs, my little lawn mower is just pie, so I think I need Hyatt Roller Bearings for it.

(Chart.) We used to think that space advertising served as a feeder for our direct mail. Well, it did before we really started to study direct mail. In those days we would see a nice seven by ten advertisement and it looked pretty good. It was general enough. "All right, Jerome, let's fold it up twice, put it in a number ten envelope and shoot it." That was our idea of direct mail before we knew how. But we find it is just the reverse. Instead of space advertising serving as a feeder for our direct mail, direct mail is serving as a feeder for space advertising.

Here was a steel-mill folder. The back page was used one week. Part of the inside folder was used for another ad two weeks later. The front cover made a nice *Iron Trade Review* ad. I told George Hayes I would call that by name. He isn't here, but I will tell him about it. The fourth page we could have used, but it was all blueprints which didn't lend themselves very well to black and white trade-paper advertising. We welcome anything in our shop that will come along and show us how to make a lot of little ones out of a big one.

(Chart.) I know you gentlemen are anxious to get going on what is coming, so I am going to sail through this pretty quickly. Most of our mailings are letterhead size, either eight pages or four pages, folded down to eight and one-half by eleven. I don't claim that that is the panacea for all ills. Maybe in some other fields you will find that six by nine is the best, but our direct mail contains so much information that we found that a great many of the engineers were filing it, and an eight and one-half by eleven folder makes a very convenient folding piece, and also a wonderful piece to stick away in the files for future reference.

As to color, we don't worry a lot about color. We just do the obvious, while a lot of fellows scratch their heads and say, "Will it be black, green, pink, yellow, or what?" Maybe we are a little better situated than a good many of you gentlemen. We say, "All right, what is the industry?" In textile most of the equipment and machinery is painted green, so we don't only talk to them in their own language but use their national colors as well.

In steel mills we feel we have to get a lot of fire, so we try to make red one of the predominating colors, and, since we need a lot of blueprints, blue is the second color.

As I say, we always send our material out unfolded in the eight and one-half by eleven envelopes. You might say that you get a monotony there. We try to keep away from that monotony by keeping the covers enough different and contents enough different. We feel that the container should be made just as neat as the contents. Therefore, we use the large envelopes and send them out with a cardboard stiffener so they won't be cracked in the mail. A recent investigation by Dartnell's showed that 75 per cent of the executives open their own mail, both first and second class, so, therefore, if you get it to them in a real presentable shape, they are going to look at it.

(Chart.) I just had this chart in here, but I am not going to sail into it in detail, because it is an evening's discussion in itself—the makeup of a mailing list. I just want to say we address the individuals in every case. We find that we have to reach a certain man, so we address all our mail directly to him whenever we can. In some cases it has to go to the firm. We insist that the salesmen give us names of the individuals. Our list is built through the names the salesmen send in, so we know that each man is a buyer or likely buyer for our product. Of course, it is checked and rechecked. We guarantee return postage, as most everyone does. You don't get all individual mail back that way, but in a good many cases it helps a little bit as a check up.

There are times when we use the publication lists, that is, when we want to get to the indirect customer. We had occasion to send out some mailings to the coal field, and some to the petroleum field. There we use the publication lists; the publications, of course, have those lists available. Some of the gentlemen will tell us all about that later.

(Chart.) It was my job as chief surgeon to make the first incision. I believe I have accomplished my task, so I am going to quit and let you gentlemen of the audience act as internes and either get the poor patient on his feet toward recovery or write out his death certificate.

ADVERTISING IS A MEANS AND NOT AN END[1]

COLONEL WILLARD CHEVALIER

Colonel Chevalier, of the McGraw-Hill Publishing Company, Inc., responded, in this talk, to the speech of Mr. Harry M. Carroll on direct-mail advertising. The two speeches were given before the Technical Publicity Association, New York City, Jan. 9, 1929.

Mr. President: I think we are to be congratulated tonight on having this very sane and fair presentation from Mr. Carroll. If he had any idea of striking fire tonight, I want to assure him that I am a very poor flint because he has not, as I can see, said anything that is at all unfriendly to sound publishing policy so far as advertising is concerned.

Naturally, I should not be so ill-advised as to take issue with Mr. Carroll on any of the means that he has used to solve the problems of the Hyatt Roller Bearing Company. He knows his proposition. I do not. I should be very foolish to criticise anything that he has done, so I shan't attempt it.

I should like to hark back for just a minute to an expression used by the Chairman. He said we were going to talk about direct mail tonight "because some of us use it, although the publishers present probably would not want to admit it in public." Such a state of mind would not be in keeping with sound industrial publishing, as I understand it. Why there should be any aversion on the part of an industrial publisher to direct mail as an advertising medium, I can't understand; and the publisher who would not like to admit in public that manufacturers use direct mail would be very much like an automobile manufacturer who would not like to admit that anybody rides on railroad trains.

First of all, I should like to restate two axioms. They are so simple that you are going to smile, but they have a very important bearing on this subject. The first is: *Advertising is a means and not an end.* We are not engaged in advertising as an interesting academic exercise in writing clever copy for publications, or preparing pretty direct-mail pieces, or setting up beautiful billboards, or anything of the sort. One difficulty that advertising men sometimes get into is that they become so enamoured of some particular aspect of advertising that advertising becomes to them an interesting exercise in the use of some particular medium. Now, advertising is not an end; it is but a means to an end.

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[1] By permission of the author. Reprinted from the *Proceedings* of the Technical Publicity Association, January, 1929.

I want to carry that one step farther to axiom number two: *There is no advertising problem that is not an effort to solve a sales problem.*

If we will paste those two axioms in our hats, we shall seldom go wrong in the matter of choosing media. It follows from this that there is no *best* advertising medium, any more than there is a *best* structural material, or a *best* football play, or a *best* pitched ball, or a *best* military weapon. The structural material the engineer uses, the football play the coach orders, the pitched ball the pitcher delivers, or the weapon that the soldier uses is chosen entirely with a view to the objective to be attained.

The kind of advertising that you are going to use, and that means not only the medium you are going to select but also the kind of copy you are going to use and 101 other considerations, depends entirely upon the sales strategy and tactics of your house. And if you are truly an *advertising man* and not simply a copy scribbler, you are going to choose your advertising weapon bearing in mind, always, the sales policy and objective of your house. If you do anything else, you are simply making a pleasant exercise out of your occupation and not helping to forward the interests of your employer.

I should like to pursue for a moment the simile of the military weapon, because to me there is a singular analogy between the selling process and the conduct of battle. We all are engaged in selling, which is a competitive effort. Organized warfare is a highly developed competitive effort, and we may find many pat analogies in the principles of military science that will help out our thinking in sales strategy and tactics.

A military commander has at his disposal many weapons. He has the "heavies" of the army and corps artillery, the field artillery of the division, machine guns, one-pounders, hand grenades, tanks, airplanes and all the rest. You cannot find a competent commander who will contend that field artillery is the weapon to win battles with. He wouldn't last fifteen minutes in a well-organized army. You cannot find one that will put his faith exclusively in machine guns. He would be considered a lopsided monomaniac if he did. He is a competent commander who knows how to marshal *all his resources for the accomplishment of his purpose.*

The analogy goes still farther. All of these weapons that I have named, whether they be the great heavies of the army artillery or the machine guns, are known as "auxiliary weapons." Auxiliary to what? Auxiliary to the infantry, for the infantry is the queen of the battlefield. It is only the foot soldier who can advance, drive out the enemy, occupy and hold ground—who can win battles. And the business analogy of the infantry is the salesman. (Applause.)

Every one of you gentlemen, whatever may be your job in the advertising business, is simply handling auxiliary weapons, designed for only one useful purpose; and that is to forward the advance of your company's infantry, to help put your salesmen over no-man's land into the opponents' trenches, to occupy them and hold them.

If we will bear those rather fundamental principles in mind, we are going to eliminate any idea of conflict between media. Of course, it is perfectly natural that a man who has specialized in machine guns believes in machine guns. The artillerist always believes in his "75s." But in a well-organized army they are not allowed to run away with their hobbies. Their special enthusiasm and skill is used to the utmost to perfect their weapons and their use in order that they may be skillfully coordinated with all the other weapons by a commander who has the vision to see the big problem clearly, and the judgment to use each one of them effectively for the purpose for which it is best adapted.

The master advertising man is not the man who knows all about one particular weapon of selling. He is the man who understands the merits and limitations of each and who knows how to coordinate them toward one objective—that is, to put the salesman in possession of the order. Now, mind you, I am deliberately excepting mail-order business. I take it we are not tonight talking about mail-order business, which is a very special case. I am assuming that all of us, as Mr. Carroll has said, must have salesmen to sell our goods, and, incidentally, may I inject in passing, that I hope you will let that apply even to publishers? (Applause.)

What I have described is the difference between *carrying out an advertising plan* and *just doing some advertising*. One trouble today is that a good many manufacturers are "just doing some advertising" and not actually carrying on an advertising campaign organized to advance their selling.

Now, in planning such a campaign, obviously every manufacturer is not going to use the same weapons to the same degree. Why? Because they employ different sales strategies. They are trying to occupy different ground in a different sales terrain, if I may continue the military analogy. Each is influenced by a different environment and atmosphere and each may make entirely different tactical use of the weapons he has at his disposal.

To illustrate what I mean without boresome detail, I have written down here a dozen different sales objectives. It all sounds very simple. We say, "We just have to sell goods." Well, it isn't quite so simple. I am going to read a dozen I wrote at random. You can extend the list. Here are some advertising objectives:

First of all, to make sales, *i. e.,* mail-order business. Second, to elicit inquiries. That is a special problem of its own. Third, to create acceptance of a product. Fourth, to educate a mass of potential buyers. Fifth, to establish dominance or leadership in some industry. Sixth, to attract desirable dealers or agents. Seventh, to prepare the way for your salesmen, to get a favorable entrance for them. Eighth, to present your story in just the form you want it told to the user, not relying upon someone else to tell your story for you. Ninth, to control your own business and goodwill and not let it get into the hands of middlemen of one kind or another. Tenth, to discount time in establishing a new or wider market. That, by the way, is the one great American sales phenomenon, to saturate one market of 115,000,000 people over an area of 3,000 by 1,000 miles almost overnight. Eleventh, to identify a product and prevent or lessen substitution. Twelfth, to keep present customers sold on the standing and reliability of your house, and so on, and so on, and so on.

I have written down a dozen to show how different may be the objectives of an advertising campaign, and now I ask you if anyone can write a panacea that will do an equally good job in attaining all those objectives. The problem of each individual advertising man is to take the sales strategy of his house, determine it by one of those I have, or some I haven't, mentioned, and then pick and use most intelligently the weapons that will best accomplish the sales purpose in view.

Getting down more particularly to the technique of this process, I have written down here the three legs of Mr. Carroll's stool. I don't like that stool. The stool is static. I rather think of selling in terms of something more dynamic. Let us say there are three ways of making sales contacts. The most effective is by the salesman. The personal contact is the most effective method of contacting, but we don't use that exclusively. Why? Because it costs too much. It is not only the most effective. It is the most expensive.

Then there is direct mail and publication advertising. The point I want to make is that what a man can pay per contact depends on a number of factors. You have purely an economic problem. If there are any mathematicians here who remember their calculus, you have a problem in maxima and minima, a problem of trying to determine how to get the maximum number of effective contacts for the minimum cost. It is purely an economic problem, and you have these different tools or instruments or weapons to use in solving it.

It would be folly for anyone to stand up here and read a prescription as to how *you* should use them, because you have to analyze your specific problem, find out the economics of it, and write your own prescription.

What you can afford to pay per contact depends on several factors —first, the advertising objective; second, the accuracy with which the target can be defined. It will be obvious that if you can accurately define your target, you are justified in using a method of contacting that is relatively expensive per contact. If, for example, you know that you have only fifty prospects in the United States, you can afford to send a salesman to make a personal contact with each one, because you can accurately define your target. If, however, you have a larger number, maybe you can define it accurately enough to use direct mail. However, you may eventually have so large a number that your target is vaguely drawn and ill-defined, so that publication advertising or some other form of mass advertising obviously is the most economical method of making these contacts. Third, the value of the average order has a good deal to do with how much you can afford to pay to make a contact. Fourth, the importance of a single prospect to you may have a lot to do with the amount of money you are justified in putting into that contact.

Furthermore, whether the target is moving or stationary. If you are shooting at a target that you know is going to stay right there, you may be able to use a more expensive means, economically, to hit it but if that target is constantly moving, you may find out some other method of contacting is more economical in the long run, even though not so efficient on an individual shot if you could but call the shot accurately. There are other considerations. These are simply to sugges and illustrate an approach to the problem of selecting the most economical advertising medium for the objective in mind.

To carry out that analogy of single shots, I have put down here wha I see as the elements that enter into the cost of direct mail: (1) the cos of keeping the target defined, that is, your list building and list maintaining; (2) the cost of preparing the ammunition, that is, your literature, your printed matter; (3) the cost of firing your shot, that is, you mailing cost; and, finally (4), the cost of picking up the birds, that is, following up your inquiries and getting orders from them.

You have to add those four elements of cost to get the cost of one shot, and you must think a long while before you can make up your mind whether you can do that economically with a rifle or whether you hadn't better use a shot-gun or, perhaps, go out and catch the birds with your bare hands, as you can do with salesmen. (Laughter.) Those are some of the points that have to be considered.

I want to come back to something we were talking about at our last meeting, because it has a bearing on this. Something had been said by Mr. Carroll, very pleasantly and in such a way that no one could take the slightest offense, about salesmen not pushing something other than what they are selling. Unfortunately, that is a human failing. A salesman, gentlemen, is an advocate, and an advocate is seldom noted for his willingness to sell all sides of a question. And it is thoroughly legitimate, because he knows perfectly well that when he goes out of the office, an opposing advocate is going to come in (laughter) to shoot his story all to pieces and put the other side before the purchaser. Sooner or later, the purchaser gets all sides.

You know, I was entertained by the suggestion made at that meeting that publishers' salesmen be abolished. I was amused, because for twenty years as an engineer, as a purchasing agent, as a buyer of advertising space and many other commodities, I sat on the buyer's side of the desk and listened to cement salesmen and oil salesmen and machinery salesmen and a half-dozen other kinds of salesmen who were in to sell me their goods. And I must confess that I got as fed up with them at times as some of you space buyers may get with publication salesmen. It might be a bully thing to abolish space salesmen provided you all will go back and recommend to your bosses and clients, if you are agency men, that they all abolish their salesmen, too. What is sauce for the goose is sauce for the gander, and I see no particular harm in a movement to abolish *all* salesmen (laughter), because I know perfectly well that there isn't a chance of its succeeding.

How many cement salesmen, for instance, ever sell structural steel or the idea of structural steel to their customers? How many roller bearing manufacturers ever set forth the advantages of ball bearings? How many printers and direct-mail list men ever sell the importance of a publication on the schedule?

The point I want to make is simply that it doesn't get us anywhere to find fault with salesmen because they sell their goods hard. I will say this in behalf of the publisher. There are publishers who have been making a gallant effort to build up confidence amongst advertisers through advice and information of one kind or another that they can bring to them. There are publishers who are not afraid to recommend papers they do not publish, direct mail, or any other form of advertising that they think will be helpful to the sales problem of a manufacturer. The success of that kind of selling, gentlemen, is going to depend entirely on the reception that it gets at your hands.

Whether publishers can successfully adapt themselves to the role of impartial advisers in the limited degree that may be necessary depends entirely upon the reception that they get from the advertiser. I am hopeful that the day will come when there will be less dog-eat-dog, less competitive selling, greater open-mindedness, and broader vision on the part of salesmen of all media and products of every description, but it will only come about when the buyer is willing to meet them half way and open his mind and not expect that every salesman who calls upon him is some kind of crook, so that he must button his pockets when he sees him coming. (Laughter.)

I just have one or two things more and I am through, Mr. Chairman. I am sorry to take up so much of your time, but I have noted a few of the specific points Mr. Carroll made. For example, he refers to the large number of industries with thin markets, and he shows how he uses direct mail to cover them. I am not at all questioning the wisdom of his decision in his case. I just want to point out that publishers have provided a medium designed to do that thing. Whether it applies to your case or not, I cannot say now, but the horizontal or functional paper is designed to do just exactly that thing, to reach thin markets in various industries where a specific function can be clearly defined to run through those industries.

We know that there are manufacturers of products that frequently call for functional selling throughout all industry. The markets in each industry are thin. They wouldn't be justified in going into industry papers to cover them all, but the publisher provides a functional paper to help accomplish that job.

Mr. Carroll referred to the necessity of using direct mail to reach the designing authorities in those well-known potential customers of his that can use his bearings in their machines. Perhaps that is perfectly right. Perhaps he can define his target here with sufficient accuracy so that direct mail offers him the most economical means of accomplishing that purpose. However, there are publications designed to reach the designing departments and production departments of manufacturers of various types. It does not necessarily mean, as I understand you, Mr. Carroll, that because you have done that to solve your particular problem, there is not a place for an industrial publication somewhere to do a job for the man who wants to sell an accessory or fabrication part to certain industries. There are publications that make it quite possible to do that economically.

In referring to your direct mail, you said it was possible to make an impression upon these men just as often as you mailed a piece. I should like to amend that to—"as often as you reach the man." I have handled a great deal of direct mail. I have had it come to me. I have been in organizations where a great deal came in. I am not at all questioning the economy or practicability or usefulness of direct mail, but I think we are deluding ourselves if we run away with the idea that a piece mailed means a message delivered. I think ordinary observation will tell us any day that this is not so, and I don't think it is fair always to talk about the waste circulation of a publication and then discuss direct mail as though it were 100 per cent efficient in carrying its message to the target. There is something to be said on both sides for both media.

Mr. Carroll very properly referred to the great advantage of being able to build and maintain your own lists, and in many cases that may be the wise and economic thing to do. However, I want to point out the tremendous selective power of a good, well-edited, authoritative publication. A well-edited, high-grade, authoritative publication is doing a selective job every day, and when the man puts down a subscription price and asks that paper to come to him, and renews it year after year, he is marking himself as one of the progressive figures, as one of the leaders in his particular industry, a man who is interested in the progress of the art; and he is, thereby, selecting himself at once and putting himself into a group that is worth your while cultivating.

You may be able to do a better job on *your* product if you go out and hand pick these men yourself, but I don't want to leave the impression that that is the only way to select a desirable audience to receive your story.

That is about all I have to say. I want to end up with the same note I started on. There is no conflict in my mind between publications and direct-mail, billboard, theatre-program or any other kind of advertising. If you are a real, honest-to-goodness advertising man, you are asking yourself every morning when you sit down at your desk— What is the sales objective of my company? What is the sales strategy? What are the sales tactics? How am I going to choose my media, write my copy, and disseminate my advertising message so that it is going to advance most economically the sales purpose of this company?

If you answer those questions honestly and fairly, according to your best lights, I, as a publisher of one form of advertising medium, am not going to quarrel with you for a minute. I am for you 100 per cent. All I ask is that you keep your mind open when you are solving that problem and don't become hipped on some personal preference, that you don't get on a hobbyhorse and ride the thing so that while you may be getting a great kick out of it yourself, you are forgetting what the boss wants after all, and that is more sales at a lower sales cost and a longer profit. Thank you. (Applause.)

FACTS IN THE LUMBER BUSINESS[1]

WILSON COMPTON

Mr. Compton, Secretary and Manager of the National Lumber Manufacturers' Association, gave this address at a meeting of the Board of Directors of the association, Chicago, Apr. 25, 1929.

On last Dec. 6 I addressed the Board of Directors on the three vital matters before the industry today; first, the maintenance of its products in profitable and extensive use; second, the intelligent regulation of production; third, the establishment by the industry of effective guarantees of the integrity of its products. To the statements which I made then I have nothing to add; nor from them have I anything to subtract. The generous and almost universal endorsement by leading lumbermen in every region and in every species, is an assurance of their concurrence in the soundness of the conclusions then advanced. The task now is to convert these convictions in principle into performance in practice. That is the task of the individual manufacturers of lumber.

Departmental Activities

Report of the financial progress of the Trade Extension Campaign and of the increasing evidences of its tangible constructive results has been made to the Trade Extension Committee. Copies are available to all interested subscribers.

Pursuant to the action of the Board of Directors at its last meeting, the Association has diligently sought the completion of the lumber standardization program and the establishment of protections and guarantees which will go far toward insuring the application and observance of these standards in the manufacture and distribution of lumber. Complete report of these activities also has been made to the Trade Extension Committee and the Board of Directors.

In response to the request of the Board of Directors that, by concerted action of the regional and National associations, an improved and more extensive statistical service be provided the lumber manufacturers, a comprehensive program is under way. If individual lumber companies will cooperate consistently in furnishing accurate information, we shall be able to supply the most extensive and dependable current picture of supply and demand conditions available in any large American industry. This will be the subject of your consideration at a later session of this convention. I will not therefore impose upon you here any further comment on these programs of trade extension or improved statistical service.

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[1] By permission of the author.

"Whither We Are Tending"

In a period of political chaos, Lincoln in one of his most familiar speeches once said:

> If we could first know where we are and whither we are tending, we could better judge what to do and how to do it.

This was an appeal for facts as a basis for political action. The advice is equally applicable to industry. Where are we and whither are we tending? If we know that then we can the better "judge what to do and how to do it."

Economic Research Program Proposed

Two years ago in an appeal to our industry that we "Put the Headlight on in Front," I referred briefly to some of the economic problems, trends and prospects which at that time I believed to be ahead of the lumber industry. Since then, from time to time, I have been asked to elaborate those views. At a later date I shall do so. At this time I shall make only a brief explanation of the suggestion which I have laid before the Board of Directors that provision as soon as practicable be made for an organized program of *economic investigations, surveys* and *research* more comprehensive than has heretofore been undertaken in the lumber industry. Essentially it is an appeal to those lumbermen who are interested in the future as well as the present of the lumber business, that they seek the economic facts which will permit, in the lumber industry, the same kind of intelligent long-range planning of future operations and policies which characterizes the most progressive and most successful of American industries today. In so saying I am well aware of the fact that there are some lumbermen who, because of their prospective limited operating lifetime, may have in such an undertaking only a mild interest. But I am sure that they too will approve of any practical program for the development, advancement and perpetuation of the lumber industry.

This is a matter to which, because of strong personal interest and study as an economist, I have for years given a great deal of thought. I believe in the future of the lumber business. With the aid of dependable facts and competent leadership, I know of no reason why the lumber industry cannot maintain always a position as one of the greatest of American industries. But without facts to guide it, there can be no wise leadership. My suggestion therefore is that consideration as promptly as possible be given to a systematic plan of economic surveys and research, more fundamental and more extensive than the industry, or any part of it, has heretofore attempted. I believe it should be a concerted program, participated in by the national and the regional associations and the wood-using industries, and for some purposes by the United States Government. The timeliness of such an undertaking is marked I believe by the fact that this year for the first time in history the U. S. Forest Service, under the terms of the McSweeney-McNary Forestry Research Act, has not only the statutory authority but also a substantial initial appropriation for fundamental economic research in this field.

Large Investments Involved

There is in the United States over a trillion and a half feet of merchantable standing timber in private ownership and over a half a trillion more in public ownership. If valued at an average of only $4.00 per thousand feet, this, together with plant facilities, represents an aggregate property value of nearly ten billion dollars. Much of it is vested in large ownerships. The value of standing timber is dependent fundamentally upon the value of the products which can be made from it. The integrity, security and profit of huge investments is therefore involved. The lumber industry has in its timber resources probably the most extensive potential opportunities for industrial diversification possessed by any industry in America. No one can visualize the future possibilities in wood cellulose, wood chemicals, and wood pulp products, as well as the familiar products of the sawmills, the planing mills and the wood-using industries, without sensing its vast opportunities for industrial progress, and with progress, profit.

To successfully explore and exploit these opportunities involves important problems of economic as well as technical research, market surveys, and studies of industrial organization and finance. For those who are interested in the future as well as the present of the lumber business, I know of no problems more fundamental and of no program more promising of profitable result.

To analyze this in detail would take too much time. I shall cite simply a few illustrative types of economic investigation, which I believe could advantageously be undertaken by the lumber industry, either independently or in conjunction with other industries having like interests.

Illustrative Types of Economic Investigations

First. What is the effect upon the use of lumber of the constantly increasing purchasing power and general advance in the standard of living of the American people? Compared with fifteen years ago, the average individual purchasing power has increased over 45 per cent. This is the net advance after discounting for increases in the prices of commodities and in the cost of living. If the average purchasing power fifteen years ago represented a standard of living which, as it was often described, provided the three necessities of life,—food, clothing and shelter,—then the 45 per cent advance beyond that point represents an opportunity to indulge in comforts, conveniences and luxuries, which were popularly unknown a quarter of a century ago.

Lumber used to be exploited as the most *economical* building material. Economy in cost as compared with other materials was the principal argument for its purchase and use. Today there is reason to believe that style, even elegance, has begun to outweigh economy and low cost, as an effective appeal to the purchasing power of the American people. If that is so: What is its effect on the use of lumber? And what should and can the lumber industry do to take advantage of the marketing opportunities to which this increasing per capita purchasing power may have given rise?

Second. What is the effect on the lumber industry of the more exacting buying habits of the American people? The trend in this direction is obvious. The public preference in many lines for particular advertised, certified and guaranteed brands of commodities is notorious. The American people have vividly shown that in certain important commodities they prefer certified branded products and that they will pay more to get them. Yet lumbermen shy at the task of supplying guaranteed grade-marked, trademarked lumber because it is an innovation in the lumber business. The idea, comparatively speaking, is new in the lumber business. But it is already commonplace in most successful industries.

Third. As a corollary of the more exacting purchasing standards, what effect, if any, upon the use of lumber is resulting from the lack of exact knowledge of wood properties and of the suitability of specific species for specific uses? Two years ago I laid before you in considerable detail the evidence at that time of the meager extent of knowledge even among lumbermen themselves of the exact physical and mechanical properties and chemical characteristics of their own products. Since then much progress has been made toward correcting these deficiencies. But I surmise that if the exact facts were available, showing the extent to which the profitable and satisfactory use of lumber is being handicapped by the absence of exact information, the process of remedying this handicap through the necessary research could be, and would be, greatly expedited.

The lumber industry is still to a large extent *generalizing* about its products. The consumer more and more is *particularizing*. The rectification of such condition, if it exists, is obviously of greater interest to the *producer* of lumber than to the *consumer*. The producer has nothing but lumber to sell. The consumer on the other hand can take refuge, and is taking refuge, more and more in steels, fibers, resinoids and other compositions.

Fourth. To what extent do differences in the character of preparation, in care in seasoning, and in extent of refinement of lumber affect its utility value to the consumer? Does the more complete refinement and more extensive fabrication of lumber increase its value to the consumer and the price which the consumer is willing to pay? If so, does it increase it more or less than the additional cost of such refinement and fabrication? This question is debatable. At least among lumbermen themselves it is much debated. Opinions still differ widely. Facts only will settle the debate constructively.

Fifth. To what extent do the seasonal variations in lumber consumption in industrial uses and particularly in construction, affect the demand for and the use of sawmill products? The facts whatever they are should be ascertained, so that the operations of the lumber industry may be intelligently adjusted accordingly. Otherwise, lumber distribution tends to become a speculation instead of a service. Much is already known, but there is still too much guessing.

FOREIGN LUMBER SOURCES

Sixth. What are the prospects of competition in American markets from foreign sources of lumber supply? The channels of international trade are becoming constantly more systematized. Potentially there are important sources of foreign lumber competition, which heretofore have been largely ignored. What, for example, may be the effect on the lumber industry of a combination of circumstances like this:

> Japan for many years has absorbed approximately a billion feet of American lumber annually, principally West Coast woods. American lumber has been delivered in Japan at an average price ranging between $30.00 and $35.00. The nearest comparable price competition from other sources of supply has ranged from $50.00 to $58.00, thus indicating that the Japanese price of American lumber has been fixed by competition between American exporters themselves and not by competition between American lumber and competing lumber from other sources of supply.
>
> Recently the Japanese government has imposed substantial additional duties on imported lumber. Whether, and if so to what extent, this will curtail the use in Japan of American lumber remains to be seen. Simultaneously the Russian government has declared its intention to increase its exports of Siberian lumber by at least half a billion feet annually within the next five years. The logical market for this lumber is Japan.
>
> At the same time develops the alleged plan of the Russian government to double the annual production of lumber in European Russia within the next five years to approximately eight billion feet. This level it is asserted can be maintained continuously. The present domestic consumption of lumber in Russia is apparently between three and three and a half billion feet. Its lumber export surplus last year was less than a half billion feet, a considerable proportion of which was dumped unceremoniously on the British lumber market to its near demoralization. This year the export surplus is said to be approximately three-fourths of a billion feet, and the British timber merchants profiting by their last year's experience are understood to have bought up in advance about 400 million feet.
>
> The Russian government is known to be diligent in an effort to establish gold credits abroad. In the absence of capacity to borrow or of willing lenders, its principal and obvious means of establishing gold credits is through exports. If Russia contemplates within five years an annual export surplus of four billion feet of lumber, with the disposal of the surplus guided by the purpose to establish gold credits, what export markets are likely to be sought for that purpose?

The importance of such potential developments, contingent and problematical though they are, may not wisely be ignored. In these matters there is no doubt a good deal of rumor and surmise. But after all these are questions of fact. The facts should be ascertained, and action judged accordingly.

Seventh. Where do our lumber exports go? For what purposes are they used? And what competition from other sources or from other materials do they meet? Lumber and wood products exports now represent annually between three and four billion feet or 10 per cent of our total production. This is almost equivalent in quantity and more than equivalent in value to the lumber annually used in the manufacture of boxes and crates. At present the principal reliance for this information is upon the agencies of the Government, particularly the U. S. Department of Commerce, which has for that purpose well served the interests of the American lumber industry. But it is, I believe, deserving of more extensive interest and study by the lumber industry itself. Foreign markets, if intelligently analyzed, can I believe be made to contribute substantially to the stabilization of the markets for American lumber, both softwoods and hardwoods.

LUMBER DISTRIBUTION

Eighth. There is much debate in American business today over the various methods and means of commodity distribution and their comparative advantages. Distribution is frequently described as the most important present-day economic problem. It hardly stands to reason that the lumber industry which together with its secondary wood fabricating industries represents over 10 per cent of the entire industrial activities of the United States, can hold itself immune to the trends in commodity distribution developing in other industries.

Generally speaking the lumber manufacturing industry is dependent for the distribution of its products, so far at least as lumber for building purposes is concerned, almost solely upon agencies outside of its own control; and to a large extent as to lumber for industrial uses.

The aggregate cost of getting lumber from producer to consumer, including costs of transportation, handling, yarding and delivery, now exceeds the total mill prices received by lumber manufacturers for their products. In view of this fact, and of the constantly increasing competition between lumber and the myriad of other materials, it seems reasonable to suggest that self-complacency by the lumber industry with respect to its existing facilities, methods and means of distribution, is untimely, unwarranted and unwise.

Much complaint has been made by manufacturers, retailers, and consumers alike that the costs of retail distribution of lumber are excessive and often disproportionate to the value of the service rendered. Retail lumber yards, with few exceptions, have now become distributors of diversified building materials. Lumber is still their largest single item. Most retail distributors are still by sentiment and by personal preference, lumbermen.

But sentiment is helpless in the face of economic necessity. It is said that lumber today is bearing a disproportionate part of the total cost of the local distribution of materials handled through the retail yards. It is asserted that lumber is often handled on a gross margin of from 25 to 50 per cent, whereas competing substitutes are regularly handled in the same yards on a gross margin of 10 or 5 per cent or even less. If so there must be some reason for it. Are the prevailing methods in retail distribution of building materials in effect providing a subsidy to competing materials at the expense of lumber? If so, to what extent? What are the causes and how can they be corrected? Or is lumber simply being outwitted by superior merchandising skill on the part of its competitors?

I do not say,—because I do not know,—that present facilities and methods of lumber distribution are deficient, unsuitable or unsound. I do say, however, with some assurance, that the lumber industry *does not know* whether, how, or to what extent, its distribution facilities are capable of improvement. I do not believe that as an industry it has really tried to find out. It has merely dabbled politely with a troublesome problem and then gone about some other task which, although less important, may have seemed easier.

But inasmuch as the distribution process absorbs considerably more than a billion dollars out of the aggregate price which the American people annually pay for the products of the lumber industry, it is reasonable to say that the possibilities of systematic improvement should not be rejected without extensive investigation. This is an economic problem forced upon the lumber industry by the sharp competition of other materials, and by the changing buying habits of the American people. Ignoring it will not solve it.

Ninth. To what extent does the $420,000,000 annual freight bill paid by the lumber industry come out of the manufacturer's realization? Is there a substantial extent of cross-hauling of competing species of lumber? If so who, if anyone, gains by it? Is it preventable? If so how and to what extent? If there is any practical answer to this question it will be found only by economic research to get the facts first. A nearly half-billion dollar annual freight bill would seem to offer the worthwhile raw material of an economic study of considerable magnitude and importance.

Tenth. What permanent effect may be expected from the speedy transportation service which now prevails? What probable continuing effect on buying practice, on order files, and on methods and channels of distribution? What are normal stocks? Who will carry them? How will the industry's reserve stocks be distributed between producer, distributor and consumer? The answer to these is essentially a matter of economic fact. An accurate answer will reduce, if not eliminate, one of the most important present causes of instability and uncertainty in the lumber market and of difficulty among lumber manufacturers in maintaining a consistent firm-price policy.

Eleventh. What are the effects on orderly lumber distribution of consignment car and cargo business? What if any necessary economic service is rendered by transit cars and cargoes? Can that service be supplied in some other way which does not tend to convert lumber buying into a speculation?

What Is the Value of Lumber?

Twelfth. What consideration has the lumber industry given to the question: What can the consumer afford to pay for lumber? It has for years given much attention to the question: What does it cost the manufacturer to produce lumber? But the price paid for lumber is, in the long run, measured by the value of the product to the consumer, not by its cost to the producer. The *price* of lumber should reflect its *value.*

This sounds almost "bromidic." Yet as a rule this fact does not even now govern the sale and use of lumber. Its value is not to be determined, as most lumbermen are still trying to determine it, as having a specific relation to the "cost of production"; but by its suitability and usefulness for the purposes for which the lumber may be used. A product is not worth $50.00 merely because it costs $45.00 to produce it. It may be worth only $20.00 if the uses to which it may be put are worth not more than $20.00, or if a satisfactory substitute is available at that price. On the other hand, it may be worth $150.00, if that is the value of the uses to which it is adapted and if a suitable substitute is not available at a lower price.

A product worth $20.00 is not worth $30.00 merely because it costs $30.00 to produce it. Nor is a product worth $100.00, worth $30.00 merely because it can be produced for $30.00. The only infallible connection between the "cost" and the "price" of a product is that if the price over a considerable period does not at least equal the cost, then the sheriff runs the business. We may look in vain for any other causal connection.

What consecutive effort has been made to ascertain what price consumers of lumber for its various purposes can afford to pay for lumber, before they can afford to use some substitute material? Or for that matter to ascertain in each important consuming industry what *satisfactory* substitutes, if any, are available?

Relative Position of Lumber

Thirteenth. Exactly what substitutes for lumber are available in each of its important uses? In what markets and in what volume are these substitutes available, and at what comparative price differentials? We are making substantial headway in the study of lumber and substitutes in terms of their comparative *physical* and *mechanical* properties. It is important that the industry have also a similar comparison of lumber and its substitutes in terms of *available supply* in important markets and in terms of *comparative prices.*

Fourteenth. What, in terms of specific consumer's uses, are the sources of lumber demand? We know from actual catalog that there are between 4,000 and 5,000 distinguishable construction or industrial uses for lumber. How do these uses rank in importance? What grades do they use? Which are the most solidly fortified against encroachment by competing materials? Which uses of lumber are wavering? Which are lost?

There are 48 wood-using industries using annually ten million feet or more of lumber, including softwoods and hardwoods. The wood box and crating industry is the largest; then furniture and automobile body manufacture. A study of the comparative position of lumber and substitutes for lumber, in each of these important wood-using industries aggregating now over 10 billion feet of annual lumber consumption and potentially an even larger volume, would undoubtedly add greatly to the ability of the lumber industry to keep its products in extensive and profitable use in these industries, and in a satisfactory assortment of grades.

All of these prospects, and many others which might be added thereto, are, I know, of little account, and all of these prospective possibilities will continue to be of interest largely on paper, *if the lumber industry does not keep its production in control.* Notwithstanding that the lumber industry is becoming more and more of a wood conversion industry and less and less of an exclusively sawmill business, sawn lumber is, and will continue for a long time to come, the backbone of the lumber business. The meat packing industry went through the same period of transition many years ago. The diversified utilization of packing house by-products is now concentrated in a relatively small number of plants strategically located and in highly centralized ownership and control. But there are hundreds of local slaughter houses whose facilities do not enable them to compete with the meat-packers in by-products utilization, but who are able, nevertheless, because of local advantages, to maintain themselves in competition with the products of the distant meat-packer.

PERIL OF SELF-COMPLACENCY

A parallel development, I believe, is likely to characterize the years ahead in the lumber business. There is an opportunity for real economic statesmanship in the lumber industry. Much can be done now to find the underlying trends and currents to which the lumber industry, if it is to continue as a vital part of American industry, must adjust itself. The operating head of one of the greatest modern industrial enterprises, the Radio Corporation of America, recently said:

> The greatest danger to any industry in the world is self-complacency.

The lumber industry must not permit itself to become the victim of such a fault.

The physical possibility of more extensive utilization of the by-products of logging and lumber manufacture have long been recognized. The limiting factor has been the opportunity for profitable marketing of by-products. With the vast increase in the past decade in the diversification of American industry, the constant advance in purchasing power, and the improvements in the facilities for the transportation of commodities, the economic possibility of successful marketing of the by-products of the lumber industry, seem to deserve more extensive study than they have had. The National Committee on Wood Utilization, organized by Mr. Hoover, as Secretary of Commerce, has stimulated thought, interest and action in this direction. Increasing interest is manifest within the lumber industry itself in the physical and economic possibilities of the utilization of its by-products, constituting in volume 60 per cent of the standing timber which it uses.

DIVERSIFIED WOOD UTILIZATION PROSPECTS

The physical analysis of wood is of course a new conception to most lumbermen. But if there is in the wood cell the vast potential wealth which the scientists say is there, then that industry is merely blind which closes its eyes to the possibilities of industrial progress thus opened.

Nearly all of the mechanical characteristics and many of the chemical properties of wood are derived from its fiber substance, cellulose. Wood-cellulose chemistry has already produced finer "cotton" than cotton itself. An acre of land in timber will produce four times as much cellulose annually as will the same acre in cotton. Wood cellulose has produced a hard "rubber," as resilient, more impervious to moisture, more shock resistant and apparently more durable than rubber itself. Wood today is the source of over 60 per cent of the rayon which in turn is making life miserable for silk. Some of the sharpest competition which lumber is meeting today is from fiber boards. But wood makes the best fiber boards known, and if properly organized and developed can meet this competition on more than equal terms.

Many lumbermen who expect to be in business for only a few years more may of course discount the importance of such prospects as these. But those who have large timber holdings or who expect to continue for a substantial period, or who contemplate perpetual operation, may not wisely do so. Some I am aware will describe these prospects as imaginative; or as impractical. The same was said in the meat-packing business when enterprising packers began to develop methods of saving everything but the pig's squeal. Today the scoffers are out of business and the dividends of the meat-packers are paid by the by-products. The late Dr. Steinmetz, wizard of the General Electric Co. was "panned" as a crank when years ago he predicted the wide ramification and diversification of the domestic and industrial uses of electricity. But the facts have already exceeded his own predictions.

Looking Ahead

In the automobile industry the greatest progress has been made by institutions which have deliberately sought the facts by which they could visualize the prospects of their industry for many years ahead. The Studebaker Corporation with the background of a great business built on horse-drawn vehicles, saw with the advent of the automobile the prospect of the inevitable decline of a major part of its oldest and most time-honored business. They saw which way the tide was running and ran with it, not against it. As a result they are today one of the few great motor companies which have successfully weathered the storm of the "New Competition."

The General Motors Corporation, probably the world's greatest industrial enterprise, with the aid of intensive economic investigations, has already planned its production schedules fifteen years ahead. The

Ford Motor Co. is known to have its schedules of production and distribution of both motor cars and aircraft, visualized ahead for a quarter of a century. Ford, a few years ago when he produced over half of the automobile output, tried to stick to his old-fashioned model, to force his own preferences upon a buying public which did not care to submit to dictation, and to go against the current in the automobile world. All he did was to lose,—perhaps only temporarily,—his dominant position in the motor world.

The lumber industry is, I believe, confronted with a parallel prospect. There are many lumbermen who still believe that a way can be found, and should be found, to compel the American people to buy lumber and use lumber, made and sold the way it was made and sold twenty-five years ago. Mr. Ford had the same idea with his old model T.

Economic Statesmanship in Lumber Industry

The lumber industry cannot itself determine and control these economic changes and currents. It can influence them only in part. What it can determine and can control, if it will, is the extent to which and the manner in which it will conform itself to these changing conditions. The first step to that end is the ascertainment of economic facts. I am not speaking of those facts, important as they are, which show day by day, week by week, or month by month, the changing *current* relations of lumber supply and demand, production and consumption, new business and stocks. I am speaking of those facts which, if accurately developed, properly understood, and intelligently followed, will determine the *fundamental* long-time status of our industry. It is not wise merely to fight the ripples or the waves on the surface of the sea and ignore the tides. We should first know which way the tide is running.

Statesmanship, it is said, is finding out which way God Almighty is going and then getting things out of His way.

WHAT IS THE GREATEST PRESENT NEED OF THE GAS INDUSTRY[1]

A SYMPOSIUM BY TEN SPEAKERS

This group of three-minute talks was delivered Aug. 26, 1926, at the thirty-third annual convention of the Pacific Coast Gas Association, Pasadena, Calif. D. L. Scott, Manager of Public Relations of the Los Angeles Gas and Electric Corporation, was in charge of the program and has assisted the present compilers in getting permission to use the ten addresses presented here.

1. INCREASED SUMMER USE OF GAS

WM. C. F. WEST, JR.,
LOS ANGELES GAS AND ELECTRIC CORPORATION

I approach the subject of the greatest present need of the gas industry with great fear and trembling, for if I should hit upon that need and you all agreed with me I might become famous over night.

To my mind, the greatest present need is to sell more gas during the summer months when our send-outs fall down to as low as one-fifth of the peak days of the winter months. Why is it that we have to depend on a few months in the fall and winter to meet our dividend requirements? Why not have the summer months of June, July and August pay part of our fixed charges? During a few peak days in winter, the Los Angeles Gas and Electric Corporation send-outs have gone over 100,000,000 cubic feet, and as low in summer as 22,000,000 cubic feet.

We could carry the load of three such summer days by only using our gas holder capacity and shutting down the generators altogether. But you gas men know that it would not be practical to lay off experienced gas makers and hire them back every few days.

It would be a different story if we could cut down our expenses during the summer months, but your depreciation goes on just the same. Your bond interest gets no smaller—even your gas leakage runs along at about the same percentage, and possibly a little higher, than if you were sending out considerably more gas.

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[1] By permission of the authors.

This brings up the question of how are you going to sell more gas in the summer. To my mind, that is not only a salesman's problem, but a gas appliance manufacturing problem also. Electric manufacturing people seem to be bringing out all kinds of devices which go to increase the electric load, such as the electric refrigerators we now see on every hand, and any number of devices which you all have around your homes that are run by electricity. Maybe electricity has the edge on us for its mutiplicity of uses; but are there not other ways in which we can increase the sale of gas during the summer months? Wherever we have our gas mains and there are competing fuels being used, our salesmen should use all legitimate means to put over the sale of gas with its many advantages over oil, coal and other fuels. Especially should we go after businesses which flourish in the summer; such as, summer resorts, ice cream factories, and industries which could be induced to use gas during the summer and which would not need as large a quantity during the winter.

The idea of *sell more gas in the summer* is what I have to offer as the greatest present need of the gas industry, and if it has any more, my three minutes has not been wasted.

2. A NATIONAL RESEARCH BUREAU

PAUL A. PATCHEN,
LOS ANGELES GAS AND ELECTRIC CORPORATION

Because of the expense involved in the construction of an experimental gas plant it is impractical for even the larger companies to maintain an adequate research bureau. For this reason I believe the greatest present need of the gas industry is a national research bureau.

The purpose of such a bureau would be to solve all the puzzling problems of the gas industry, not only of a technical nature, but business, educational and public relations as well.

The bureau should be made up of engineers, chemists, inventors and practical gas men of long experience. They should have at their command suitable offices, well-equipped laboratories and blacksmith, machine and pattern shops as well as a complete gas plant large enough for practical demonstrations and experiments.

The bureau would probably function best under the supervision of the American Gas Association, but should have a branch in each district to determine the problems peculiar to that section.

The field for research work is unlimited, and properly conducted experiments should test the merits of the various types of liners, checker brick, insulation materials, valves, pipes, steel and iron castings subjected to high temperatures, protective coats for metals, etc.

There is also room for improvement in the design of plant equipment, such as measuring devices, high-pressure storage tanks, waste-heat boilers and pressure regulators.

The chemists could no doubt find problems of interest in the by-products of gas fuel for the future.

Perhaps a catalyst or contact agent could be discovered which would cause the reaction in the manufacture of oil gas to take place at a temperature much lower than at present required. This would tend to effect fuel economy and add to the life of refractories, generators and wash boxes as well as increase the plant capacity.

Some economic means may be found to utilize the idle plant machinery during summer months to liquify natural gas. Some success in this direction has been attained by a natural gas product commercially known as "Gasol," which remains a liquid at 70° C. and 400 pounds pressure. A tank 8 feet long and 15 inches in diameter would hold enough liquid gas to supply an average family for one year. This product could be marketed in districts not supplied by pipe lines.

The funds for maintenance of this bureau would necessarily come from the various gas companies, and such an expense, I believe, would be a good investment as research work on a large scale would undoubtedly prove beneficial to every branch of the gas industry.

Of course, these are only suggestions and it may take years to work up a Research Department that would serve the desired purpose but once the bureau is established, many problems will be presented which, when worked out by the various experts, will result in more economic production and distribution of gas.

3. MODERNIZATION

W. M. HENDERSON,
LOS ANGELES GAS AND ELECTRIC CORPORATION

If gas is to be popular—its greatest need is to be modern.

Gas has been so long a necessary convenience that it is simply accepted as a part of the scheme of things. Nothing particularly is expected of gas, except such service as it has always rendered.

It burns, heats, cooks and smells; so it always has. With that, the expectancy of the people ceases, for the public is not sold an acceptance on gas.

Maybe it has been too long at the service of the community—"familiarity breeds contempt." More likely, however, gas has been too self-satisfied and modest about its virtues, and the deadening hand of past performance has developed a state of inertia.

The public today is not so much concerned with what is good for them; rather do they desire that which will please their fancy. Folks no longer eat to live; now they live to dine out. Clothes are not considered as a protection, but rather as an attraction. Transportation is no longer a buggy-ride, now it's a joy-ride. What is new about that is all on the surface; the essential purpose is still present, but the method is simply modernized.

If gas is going to be a modern Cinderella, and come out of the kitchen to step about with society, then let it primp up a bit.

Its old virtues need not be "lifted" to make it suit the whim of our social whirl. To be modern, let it rouge up a little with efficiency, "bob" some of its conservative habits, and shed the antiquated encumbrances that hang about its fair form.

In place of custom's "hand-me-downs," let it step out and shop for modern decorations.

For instance:

Change the gas rate from $1 per thousand cubic feet, to 10¢ per one hundred cubic feet. It is easier to talk cents than to defend dollars.

Put forth publicity that tells what gas does: prepares dinner, washes dishes, warms houses—and support it with pictures of folks in comfort, with the drudgery carried on by gas.

Register prosperity, pay wages and salaries that will attract able talent, and make all jobs worthy of their keep.

Develop public relations by an application of better human relations within the industry.

Service first, credit to follow. Let not the delinquent few establish the need for the many.

Exploit new features, thus developing the junk pile as an asset.

Apply engineering research, and divorce ourselves from the homespun "cut and try" practice.

Thus, in three words rather than three minutes—*Organize, Harmonize* and *Modernize.*

4. BETTER RELATIONS WITH NON-CUSTOMERS

B. H. PARKINSON,
PORTLAND GAS AND COKE COMPANY

The greatest need of the gas industry today is better relations with those who are *not* our customers. There is an absolute need for the co-ordination of all of the agencies directly or indirectly connected with the gas industry for the purpose of national publicity of gas and education of its uses. Agencies include the utilities, manufactures, jobbers, retailers, schools and universities.

Who can question the success of the electrical industry, yet why is it an industry hundreds of years older than its sister, must at this time strive merely to hold its ground?

One hardly picks up a newspaper, magazine or periodical without finding a glowing account of the activities of the electrical industries; perhaps a colorful story of a hydro-electric development, a story painted so vividly of untold power produced in a simple way, from sparkling mountain streams, one fails to see the figure one following the dollar sign of the cost but sees only the long row of ciphers. The gas industry is an equally romantic industry but in the next column one does not read an equally glowing account of clouds of oil bubbling forth from Mother Earth or tons of black diamonds coming from the ground to be transformed into a mystic vapor, gas, to be delivered invisibly to one's home. No? Instead one reads "Man Killed by Gas" and if one is interested further one discovers a man in Nova Scotia committed suicide by gas; one of the unfortunate but well-advertised uses of our commodity.

Young college men are interested, through publicity, in the occupations offered by the electrical industries and receive a diploma specifically certifying to their fitness for that industry's work. Ask a young man entering college, if he would be interested in preparing himself for the gas industry and you would receive a blank and perplexed look as your answer. We need men of vision and high purpose to perpetuate the Gas Industry.

Building codes are educational in that they impress upon the user of the commodity, in a matter-of-fact way, the necessity of reasonable care. What a pitiful and meager comparison there is of the number of gas building-codes with the number of electric building-codes.

"If it is done with heat, you can do it better with gas" is an axiom. The gas industry is economically sound. Then why this wave of sales resistance? Why do a great many people believe that gas is too dangerous to use? Why is gas accused of being the origin of so many impossible evils? It is due to the lack of general education.

Thanks to those responsible, we have efficient manufacturing plants, distribution systems, accounting departments and have made long strides toward better relations with our customers. That which is needed today is better relations with those who are *not* our customers.

My friends, this publicity and educational work is not a local problem to be worked out by one utility here and an appliance dealer there but is a problem affecting the entire industry and all its related agencies and must be worked out on a national basis by organized effort of all the agencies of the industry.

5. HOME SERVICE ACTIVITY

ISABEL ALLOBACH,
SOUTHERN COUNTIES GAS COMPANY

It is hardly necessary to mention that the success of every business is dependent upon two vital factors: Friendship of the community and increased sale of products. The gas industry is no exception.

Fifteen years ago bankers were hiding behind mahogany partitions; public utilities stock sold only in five and ten thousand dollar blocks.

Today Mr. Banker is out in the open; the smallest depositor may gaze upon his haughty countenance . . . only it isn't any more . . . it's beaming. He's making friends.

Stock in public utilities sells for $10 down and five a month . . . "A dollar down and a Sheriff a week," said a movie star when her creditors closed in.

"Public Relations" is a new phrase. It's friendship with a boyish bob. Home Service is simply an alias.

Home Service has as many wave-lengths as the radio. It reaches into the home and makes a friend of the housewife, incidentally the husband.

It goes into the clubs and church organizations and gives them not only active assistance, but furnishes materials for their work. It extends the same courteous service to its competitors' customers; it works with the Parent Teacher Associations, and it also goes into the school rooms. Always and forever it is preaching the doctrine of proper and economical use of gas and preparation of food. It makes friends as it goes.

Commercial departments find Home Service their best first aid. Not alone as a creator of sales, but in making a booster out of the purchaser.

The Home Service department instructs the experienced housewife in the proper use of her new range; and the one whose wedding ring still shines is also taught the correct and economic preparation of food; both are encouraged to do more cooking . . . which uses more gas.

The Home Service department creates faith and confidence in the community through its intimate contact with the individual, and its ever-ready help for their personal needs.

It brings the women into the company's offices with some other object than to pay a bill or register a complaint; they come to cooking classes; they want new recipes, suggestions for a luncheon or dinner; they are made to feel that we belong to them, and they to us, . . . and friends are made.

The Home Service department increases gas sales; it increases appliance sales; it establishes consumer contact, competitive dealer contact; it tunes in with every department of its own organization.

It wins the heart of its local paper, and its activities furnish new stories . . . the most effective advertising.

You must admit that the Home Service department is the greatest need of the gas industry today, for its work is all done to the refrain of:

Make friends; make friends; make friends.

Friendships reduce the cost of operation by eliminating complaints; they increase the consumption of gas as the women have been encouraged to cook through instruction in the simple and economical preparation of food; more hot water is used through these kitchen activities. After a delicious meal the radiant fire or furnace is lighted and the family spends the evening at home instead of at a movie. There is no limit to the possibilities of the Home Service department's activities.

6. SALES PROMOTION FOR BETTER APPLIANCES

F. U. NAYLOR,
PACIFIC GAS AND ELECTRIC COMPANY

The greatest need of the gas industry is a coordinated program of education, advertising, and sales activity that will foster the sale of quality gas appliances, properly installed, so that our consumers will enjoy the full benefits of gas service, and more generally come to appreciate the superior advantages of modern gas appliances for modern homes.

Our gas industry has large generating plants and far-reaching distribution systems pioneered and perfected by able engineers. We have accurate accounting systems, excellent service departments, and ambitious sales departments. Rate departments are working out equitable charges for our service for every type of consumer. Managements have built a sound economic foundation for investments that each year attract additional capital for our large expansion program. And, finally, a well-trained personnel has been developed within the industry, having as its objective a better service to the public.

Notwithstanding this complete organization of the gas industry, its purpose of rendering service to the public is often frustrated, not because of any failure on the part of the gas, but because of the appliances that utilize gas. Unknowingly, consumers have blamed the gas because of the faulty operation of some poorly designed, or improperly installed, gas appliance. This situation is becoming crystallized into more or less of an unfavorable acceptance for gas and gas appliances.

Regardless of the efforts of sales departments we know that in many companies the trend of average consumption per domestic consumer is on the decrease. To be sure, competition from other fuels has become very keen, but our gas industry should be able to more than hold its own in the face of this competition because of the proven superior advantages of gas as a fuel. We know that it is only necessary to properly install a quality gas appliance, with its modern improvements, for each and every consumer to fully realize the benefits of gas service.

Therefore, the greatest need of our gas industry today is an educational program that would give the proper—and much needed—support to the sales agencies who are endeavoring to sell and properly install the modern quality appliance. The extent to which this plan is put across will measure the future growth of our gas industry by building a continued popular preference for gas—the Ideal Fuel.

7. LOYALTY AND INTELLIGENCE

C. W. DOWNS,
SOUTHERN CALIFORNIA GAS COMPANY

Two great factors stand out in the citizenship of any successful nation. Observe the conditions in those countries where these factors do not exist and you will find chaos or disorganized and ineffectual progress. What is true of the citizenship of nations is likewise true of the personnel of progressive industries and what is generally true of industries is particularly and emphatically true in the Gas Industry.

I refer to two great qualities—one of which is so simple and homely that in this sophisticated age it is often overlooked. It is loyalty. The other is a product of clean living and proper education. It is intelligence. These qualities must be complementary. Loyalty without intelligence may mean dumb allegiance and intelligence without loyalty may serve only a selfish purpose.

Why is the great present-day need of the Gas Industry loyal and intelligent employees? First, because the Gas Business can so easily become the plaything of Public Opinion. Given a loyal group of employees a Gas Company can do more to combat adverse criticism by the employees' direct contact with the public than by all the publicity in the world. Second, because its equipment and service depend upon first-class brain power to manage and improve it and to keep pace with the inroads of increasing competition.

Loyalty has many names. In the army it was called Esprit de Corps —in the World War—morale—in the life of the nation—patriotism. In the last analysis it is the love of an institution or an ideal. There is a peculiar characteristic about this virtue. It must be instilled within the hearts of the employees from the top of the organization to the bottom. It can't come from the bottom up. It thrives on a good example but weakens when subjected to thoughtlessness. The acetylene torch fuses metal in a pipe line so that the joint becomes the strongest part of the line. Misdirect the torch and the pipe is cut instead of welded. So it will always be in the development of loyalty.

The employment and development of intelligent employees has long been accepted as necessary but only of recent years has it been given serious consideration by scholars and executives. The head of one of our great manufacturing industries recently stated that his organization was not so much concerned with mechanical or electrical or chemical engineering as they were with Human Engineering. Just as science attempts to classify facts, so human engineering tries to classify, develop, and place to advantage, the intelligence of the employee. The Gas Industry has barely begun this phase of its work. Universities have done practically nothing until the past few years towards training young men for the Gas Business. Now there are several who give special courses in this great work. It is safe to say that in the near future the employment and assignment of employees will be as careful a study as any of the sciences.

In view of such a development, the Gas Industry will not be primarily concerned about the adjustment of rates or high construction costs or the need for improved equipment—for these problems will be solved by Intelligence.

What is the greatest present need of the Gas Industry? I submit to you the two great factors—one as important as the other—each dependent upon the other—both of them promoting a healthy, happy, and prosperous era in the Gas Business—Loyalty and Intelligence.

8. TRAINING IN ATTITUDE TOWARD THE PUBLIC

S. C. SINGER,
SOUTHERN CALIFORNIA GAS COMPANY

To my mind the greatest present need of the gas industry is the active fostering of public goodwill through a channel of definite personnel employment training.

At the present time great expense and effort are put forward in attempting to secure goodwill through advertising, either in the newspapers, magazines, or by means of placards; also through the furtherance of customer ownership of securities, and again through personal contact of a few employees in participation in activities of large civic organizations or civic clubs.

These are all excellent ideas and have been very successful in the results obtained, but haven't we missed a major factor in fostering goodwill by not keeping in our employ men and women who are of the proper temperament to properly discuss the company's affairs, insofar as their particular work is concerned, with our consumers?

Fostering of goodwill does not necessarily accompany the educated man or woman, but is rather the growth of breeding and training, which can be cultivated and bred into employees. I appreciate the fact that it is hard to teach a man or woman to greet a consumer with a pleasant word or smile, or to use the proper inflection of the voice when talking to them personally or by phone, but I believe that employees in our class of business must be trained to do this or they do not fit into our line of work.

The failure to adopt and carry out a training of goodwill policy right down in the ranks of our employees, placing behavior toward the public ahead of particular skill in the departmental work to which the employee may be assigned at that time, may mean the breaking down of the standing of that particular company in the community, resulting in the gradual loss of confidence in the company's business in favor of a more live and up-to-date organization.

Many of us have been employed because of our particular grade of efficiency in special lines such as manufacture, distribution, accounting or other similar important phases of the gas industry; but how many of us have been employed primarily for the purpose of fostering good-will through daily contact with the public? Many of us analyze and work out extremely important financial problems, creating tremendous savings for our company, but if we do not show the public the justice of these accomplishments and the justice in our various rulings which may seem arbitrary, we have lost beyond repair all the good which the dollar and cent tabulation may have accomplished.

May I close with the recommendation that the guiding hands of our various companies immediately take such steps to employ such assistants as are necessary to personally instruct countermen, fitters, meter readers, dispatchers, and such other employees who daily come in contact with the public as to the manner of proper customer attitude (if you may care to call it such) while carrying on our activities.

9. AUTOMATIC CONTROL FOR APPLIANCES

GEORGE BOWERSOX,
SOUTHERN CALIFORNIA GAS COMPANY

From the subject "What is the Greatest Present Need of the Gas Industry" one would think that the gas business had gone to rack and ruin. Well, it hasn't.

The big problems of the gas industry have been solved, and by solving them there has been produced the most flexible fuel that is known. The thing that we have to realize is the real worth of our product and to bring out this value so the consumer can see it. What's the use of having a gold mine and not working it? That is our situation exactly. We have something that is so good it eliminates any competition and we are too modest to shout the merits of gas from the house tops.

While we are attending this convention we get all hopped up about the good qualities of gas but you know the gas was just as good before we came here as it is now. Instead of just trying to increase the revenue by adding more ranges and water heaters on the line, devise means to use gas any time, any place heat is required.

One of the best ways of doing this is to incorporate automatic temperature and pressure controls. Of course, these cost more money but is there one of you who would use a coal oil lamp in your home? Why not? It is cheaper. But we have become so used to the convenience that we would not do without it. The same thing applies to the gas installations because the consumer becomes accustomed to rely on the automatic features to produce for him a uniform product that he will never go back to hit and miss method of production.

There is the place where a newer business—namely electricity—has taken advantage of our mistakes or oversight. Electrical installations are always equipped with protective and automatic devices. And right today electricity is a synonym for convenience to most of us. When we come to realize that our own product lends its self readily to automatic controls and that such equipment not only saves gas but eliminates waste and produces a uniform product, we will find that bigger and better jobs will come our way. To accomplish these results, we must work with the manufacturers and representatives of automatic control equipment and gas burning equipment.

The historic "Sutter's Mill" where gold was first discovered, turned out good flour and brought the owner a good return on the money invested. But when it was realized that they had a gold mine waiting to be worked, it opened up a field where millions of dollars were made.

Gas is our gold mine and if we work it right, it will make old Sutter's Mill look like a free-will offering in a Scottish Church.

10. VISION

WALTER M. BERRY,
CALIFORNIA GAS RESEARCH COUNCIL

Every important advance in science, economics, or politics has been based on the vision and imagination of some individual or group of men. Vision is the greatest need of the gas industry today: vision to foresee how the changes that will occur in our economic and industrial life in the next two or three decades will affect our industry; vision to plan for the future that the gas industry shall have an even more important place in economic life than it has at present.

Recent years have seen more progress in science and industry and in all matters pertaining to human comfort and happiness than preceding centuries. Can we say that in our gas-manufacturing processes we have reached the maximum economy of production; in our distribution practice the necessary adequacy and reliability of service; and in our utilization methods the highest efficiency, convenience, and satisfaction that gas fuel is capable of giving?

Twenty years ago the discovery of oil in California changed the gas-manufacturing processes on the Pacific Coast. Now the automobile is taking that fuel away from us, and we must again look to other fuels for our gas-making material. Vision is needed to free the industry from the present uncertainty regarding availability and cost of gas-making fuels.

The gas companies have one-half their capital investment in the network of underground mains and pipes, yet comparatively little attention has been given to the protection of these systems from the ravages of corrosion, or to the most economical layout of these systems to take care of future requirements. Replacements and additions to the gas mains will become tremendously costly and difficult with the increasing use of heavier and more substantial types of pavement demanded by our modern traffic conditions. Have we vision and imagination to plan distribution systems of sufficient stability and capacity to take care of future requirements when the cities will be built up practically solid and our gas send-outs will be several times as large as they are today?

The gas industry has had a marvelous growth in volume of gas sold and in the number of users of its product. This growth must not be allowed to cease. The industries of the future must be made more dependent upon gas fuel so that our cities can be kept clean and healthy. The homes of the future, which will be marvels of beauty, comfort, and convenience, must have more perfect and more beautiful appliances, and these must always be kept in the highest state of repair and adjustment through the joint efforts of the appliance manufacturer, dealer, and the gas company.

We are all glad to be engaged in an industry that adds so greatly to the comforts of the modern community; but do we give only what is asked of us and what force of present circumstance compels us to supply, or do we see a vision of greater usefulness whereby we shall become even more essential in the community life because of the high quality of service that we supply through this great industry in which we are employed?

II.

INSPIRATIONAL SPEECHES

A PRUDENTIAL THANKSGIVING DAY[1]

EDWARD D. DUFFIELD

Mr. Duffield, President of the Prudential Insurance Company of America, delivered this address in opening the Home Office Conference, Newark, N. J., Apr. 16, 1928.

There is one custom that has come to us in these United States from their inception. When our forefathers landed on that bleak New England shore and established there the first settlement, after a year of the greatest discouragement and facing the devastation of another winter, they nevertheless, when they had harvested their first scanty crop, joined together to give thanks to Almighty God for those things that they had accomplished. They then established what has become our national Thanksgiving Day—that day that renews family ties by bringing back to the homestead, either in actuality or in thought, those who have gone out therefrom, the day on which we review the mercies of the past and look forward to further accomplishments in the future. I think we may say this is a Prudential Thanksgiving Day. (Applause.)

The boys and, I am glad to add, the girls are back at the old homestead. We are reviewing the blessings of the past; we are looking with confidence to the future, and it is again my privilege to extend to you, one and all, the warmest and heartiest of welcomes. (Applause.) For, my friends, we have reason to give thanks this year. We have had a successful year. To a degree, at least, we have measured up to our opportunities; we have rendered more widely and more broadly that Prudential service which has meant a real aid and advancement for our Company. We have done our share in ministering to the needs of humanity; we have accomplished results in which we may take an honest pride; and we have done something towards realizing those ideals that we should ever hold before ourselves in the hope that some day those ideals may be real accomplishments. And as I review for you the record of the past, and hold out for you the promise of the future, let us take again renewed enthusiasm and go forward to the task that awaits our best efforts if it is to be accomplished.

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[1] By permission of the author.

And now what of the past? You are familiar, I take it, with the figures which represent the Prudential efforts for 1927. I will, however, repeat them to you at the outset of this gathering:

Industrial paid-for insurance, including revivals and increases, $1,495,890,030, an increase of $191,203,692 over 1926;

Ordinary paid-for insurance, including revivals and increases, $1,112,542,110, an increase over 1926 of $27,396,501;

Total amount of new paid-for insurance, including revivals and increases, $2,608,432,140, an increase over 1926 of $218,600,193;

Industrial insurance in force, $6,190,095,455, a larger amount than that of any other company in the world (Applause), having increased, over 1926, $617,546,161;

Ordinary insurance in force, $5,470,424,616. New Group insurance aggregating $69,456,465 issued in 1927 is included in the above; the total Group insurance in force at the close of 1927 was $539,814,164. The increase of the Ordinary insurance in force, including Group, amounted to $517,100,257, and the total insurance in force at the end of 1927 was $11,660,520,071; (Applause). Our Industrial debit amounted to $4,535,576.82.

Our gain in Industrial debit was $472,967.22. This was a decrease in gain in Industrial debit over 1926 of $10,955.92, but when we compare our gain in Industrial debit, of $472,000, with that of our nearest competitor, of $423,000, I do not think it necessary to apologize for the decrease in connection with our figures for the preceding year. (Applause.)

Our assets at the end of the year amounted to $1,789,266,619, having increased $217,081,135 over 1926.

Those, gentlemen, are the figures of a year of achievement. They represent the accomplishment of The Prudential, and evidence, I think we can truthfully say, as never before, the increased efficiency shown by our field force in the production of new business.

Now, in analyzing these figures we find certain facts. Of course, the difficulties in an organization the size of ours are not displayed by those who are here this morning. The difficulties are in bringing up the average, whether you are talking about production or about conservation or any of the other problems of this business. It is not the men who are successful, nor the men who are making new records by placing higher new averages, who concern us most. What we must determine is this: "What is the average man doing? Are we successful in bringing up the average standard? What have we accomplished in endeavoring to get each man and each woman in this organization to do their share toward the accomplishment of the results that we desire?

In making a comparison with our friends, the Metropolitan, I find that in production of Industrial we have reason to congratulate ourselves. Our average policy issue per week per agent was 4, and that of the Metropolitan, 3.7. You will recall, I think, that in 1926 our production was somewhat lower per man than was the Metropolitan's. During 1927 it was somewhat higher, and our increased debit showed a substantial gain over the amount of increase made by the Metropolitan. (Applause.)

However, before we pin too many roses upon ourselves we might give some consideration to the Ordinary, and there our Metropolitan friends make us stop, look and listen. I want to say something about this Ordinary production per man. If the only record before us were the total amount of Ordinary produced, I should have nothing to say to you this morning except to congratulate you upon a record which is entirely satisfactory to those charged with the direction of the affairs of this Company.

But when we discover what the average production per man was, I think it gives cause for thought. Let me give you some figures that have given me cause (I will not say for anxiety) for consideration.

I find that in 1925 the average Ordinary net issue per man—and here I am quoting the figures of the Industrial staff only—was $31,108.

In 1926 this had fallen to $29,870, in 1927 to $27,082. In other words, our average issue in 1927 was $4,000 less per man than it was in 1925. And for fear that it may be suggested that this was due to conditions over which we had no control, I call your attention to the fact that the Metropolitan average was $41,000 in 1925, when ours was $31,000; was $40,000 in 1926, when ours had fallen to $29,000; and in 1927 had risen again to $41,700, when The Prudential's had fallen to $27,082.

Now, my friends, I think those figures give us something to think about. Of course, we can increase the total issue by putting on more men, but that is not my idea of the way to make Prudential increase in the writing of Ordinary. What we want, and what you want, and what this Company ought to have, is a field force capable of writing Ordinary insurance in larger amounts than they have done.

I don't know the explanation of this per-man basis, nor do I know why we should be producing less per year when our competitors are producing more. I am not talking to you about gross figures. I have never come here and complained to you about a gross issue. I am not offering criticism upon the ground that during 1927 we did not get an aggregate amount of Ordinary insurance which was satisfactory to the Company and which made a satisfactory record. But in this family gathering here this morning I want to impress upon you the fact that in this Industrial staff of ours we have written less Ordinary per man every year for the last three years. We started $10,000 per man below the Metropolitan, and today we are $14,000 per man lower than they are.

Now, I am not prepared to admit that the answer is that our force is less efficient than theirs. I am not prepared to admit—because I do not believe it to be a fact—that our force is less industrious than theirs. I am not prepared to admit—because I know it is not a fact—that our force is not desirous of bringing up Prudential standards to their standards, and therefore, my friends, we are driven to the conclusion that what is needed if we are to justify The Prudential's claim of efficiency, of ability, of sincerity, is to give real consideration this year to how we can bring the average writing of the average man in Ordinary up to a point that comparison will not cause to indicate that to a measurable degree we have failed in our efforts.

I want to refer for just a minute to Group insurance. I am not going to say a great deal about Group this morning. There really is not very much that I can say of a congratulatory nature, and certainly at this gathering this morning my words of criticism must be few and my words of congratulation should be many. But I am frank to say that I cannot understand why a field force as efficient as ours, why men of the ability that are here this morning and representing staffs of the demonstrated ability that Prudential staffs have shown, cannot, or will not, produce Group in larger amounts than they have done.

I am not talking about Groups on large national organizations. I am not talking to you about an impossible accomplishment. I am talking to you of the fact that we are not receiving from you applications for those local Groups that you can and should secure.

Group insurance is here to stay. If it were but a fad or fancy, and likely to pass off, I should say the simplest way to solve this problem would be to stop the writing of Group insurance. But there is not one of you who would justify that course. There is not one of you who would want me to admit that the Prudential staff is incapable of writing in full and satisfactory amounts any form of insurance which the Company may issue.

Be that as it may, gentlemen, Group insurance is here to stay. It is coming increasingly into the structure of American life insurance, and in the production of this form of protection The Prudential has lagged behind. We are trying to aid you in the selling of this form of insurance. We have effected during the year a reorganization of our selling branch of the Group Department, and we have put at the head Mr. M. P. Dickenson, Assistant Secretary, who has brought and will bring to you every aid within the power of the home office in helping you to effect sales.

But I want to suggest to you that we can't do it all. You have got to give to it more consideration, more thought, more energy and more effort if The Prudential is to take its rightful place among other companies who are issuing this form of coverage. Its policies are as good as theirs; its sales force is better than theirs; and why in heaven's name can't we sell it?

I want to say a word or two to you in regard to another subject that I have spoken about before, and I suppose I will have to speak about again—certainly I should speak of it this morning—and that is the question of the conservation of our business.

I notice in scanning figures again—and here I speak of the average—that we do not seem to be making much progress in the conservation of Industrial business. I notice that the net lapse per hundred dollars of debit in 1926 was twenty seventy-three; in 1927 it was twenty-three ninety-four; and our net policy lapse per week per agent in 1926 was two and one-tenth and the Metropolitan's, two and four-tenths.

I think I said to you last year that while we didn't write quite so much per agent as the Metropolitan had in that year, they had lapsed so much more than we that we were able to show a larger increase in debit.

I remember making a comment a year ago which, so far as the Prudential organization was concerned, may have been considered a little critical in regard to the record of the Metropolitan. What happened in 1927? They remained exactly where they were, their lapse being two and four-tenths policies per agent per week, while ours rose from two and one-tenth to two and five-tenths. I think it is the first time since I have had the privilege of speaking to you at these gatherings that I have had to call your attention to the fact that during a calendar year our lapse per agent was larger than that of our Metropolitan friends.

I don't know, gentlemen, what I can say to you in regard to this question. I have discussed it in the past and I have realized its importance. I have tried as best I could to bring it to you in order that something definite might be accomplished, and while I do not wish to seem in a critical humor, I take it that the purpose of this gathering is not merely to congratulate ourselves upon those great things that have been accomplished; it is also to analyze our records in order to see wherein we have failed to measure up so that we may correct that error in the future. (Applause.)

Now I really thought, notwithstanding that record, that I would not say much about conservation this morning, because I thought, as I say, that with the record you made during 1927, any reasonable president would be thoroughly satisfied, and I hoped I could find enough to say to you this morning in the way of praise and congratulation, so that we could eliminate some of these matters in which we seem not to have succeeded. But unfortunately I looked at the record for the first three months of 1928 and I found there a figure that I have always somehow noticed, and that was that we had exceeded our lapses by 271,000 policies. That is, in the first three months of 1928 we lapsed 271,000 more Industrial policies than we lapsed during the same period of 1927. Now, that 271,000, somehow or other, is a figure that has always stuck in my mind. I always considered it a danger signal. I used to see it sometimes in October and I thought that was unfortunate, and then somehow I began to see it in August, in July, and here it is now on the first of April that we have lapsed, in 1928, 271,000 Industrial policies more than we lapsed in the first three months of 1927. Our lapse per hundreds of dollars of debit in 1927 for three months was 24.87. Heaven knows that was enough. But in 1928 for the first three months it is 29.44. Well, I think I would sooner talk about something on which we can congratulate ourselves, but I can't find much to congratulate ourselves on in this conservation effort. Don't misunderstand me. I know there has been earnest and sincere effort. I know there have been conditions which could not be overcome. I know the situation which you faced, and I will speak of it later. I am not unmindful of the efforts you men have made to meet our expectations in conservation, but I bring these figures here to you this morning, believing that my desire to have these conditions corrected will strike a sympathetic chord.

I pictured to you those conditions in order that you might realize the necessity for continued, renewed and increased effort to combat this ever-present evil of lapsed Industrial policies. But, as I say, I would prefer to turn from that subject to one on which we can congratulate ourselves.

Those of you who were here last year remember that our whole gathering turned on this question of conservation, and we drifted over to what we thought was a fundamental proposition, that if you were going to conserve the business you had to conserve the men who were engaged in writing the business, and we discussed the question at length, until, as I recall it, the one subject which seemed to be uppermost in every meeting that we had was: "How can we cut down the number of finals?" We realized that if we could succeed in doing that and in creating a more permanent staff, we would have accomplished much toward the realization of our desires in all other phases of the business. Well, I come to you this morning, gentlemen, and congratulate you upon the fact that during the year 1927 we made a gain in reduction of finals of 6.8 per cent. In 1926 there were 6966 finals. In 1927 they were reduced to 6298, notwithstanding an increased field force. (Applause.) Gentlemen, I realize that was accomplished only by concerted effort; that it was not only due to an increased desire on the part of the superintendency force to conserve those under their guidance and direction, but that the same effort permeated the assistancy force, and, even more important, must have gone into the agency force, because if we are going to solve this question of finals we are going to solve it only by a united effort. I believe that in the last analysis the greatest effect will be achieved when the leaders in our agency force realize that a responsibility rests upon them to aid those who are less experienced than themselves, less skillful than themselves, less well acquainted with the intricacies of the business. When we find our best Agents realizing the facts that a part of their obligation as Prudential men is to make the under-average Agent an over-average Agent, to show the man who is unsuccessful, through brotherly kindness and interest in his success, how to do the work, when you find our agency forces working as a whole to bring up the district, to bring up the division, to bring up the Company to real efficiency, we shall have gone a long way toward solving this problem of reducing finals. When Prudential fellowship extends from the center to the circumference of our circle, we shall have an organization from which men will not lightly sever their connection. When we develop that degree of Prudential spirit throughout our whole organization which will cause every man to realize that all are interested in the success of each, that all have a common purpose in common success, we shall measurably accomplish those great purposes and ideals for which you and I labor and for which you and I hope.

And I bring to you this morning a word of congratulation as evidence of the fact that the Prudential spirit of the past is burning brightly today and that these results could not have been accomplished had there not been throughout our force an increased devotion to the interests of individual accomplishments by reason of common interest in the individual.

And now, my friends, what about 1928? Well, it seems to me there are certain results that these figures indicate clearly that we should strive for. I have said something to you in regard to Group insurance. The conference schedule is so arranged that tomorrow morning the Ordinary Managers have no meeting, that on Wednesday morning the superintendency force seems to be free, and I want to suggest to you that if you are really interested in the accomplishment of real results in connection with an increased Group production, you men of the supervisory force arrange on your free morning to meet with Mr. Dickenson and discuss with him how the Prudential staff can sell more group insurance. This is an opportunity, not a compulsion, but an opportunity which, it seems to me, you men ought to take advantage of. I suggest to you that during those hours when you are free you meet and discuss in an informal manner how you can accomplish some real results in connection with Group. And let me add that if the groups secured so far this year were all issued, on the applications which are in, we should probably be able to report a larger writing during the first three months of 1928 than for the full year of 1927. (Applause.)

Now it seems to me that probably the greatest object we should consider for accomplishment in 1928 is the increasing of the average production of Ordinary writing per man. I gave you some figures a while ago to indicate that there is a decrease in this, rather than an increase. I gave you figures indicating the fact that the writings of our Metropolitan friends have increased instead of decreased. This reinforces the fact that the request I am making this morning is one that is perfectly capable of accomplishment. I am not here this morning urging upon you the writing of an abnormal amount of business. I am not here this morning to press upon you the development of a large or excessively large amount of Ordinary or Industrial business. Again I congratulate you upon the writings you made during the preceding year. But I am saying that if we are to succeed in those high purposes and those lofty aims that we have for this Company of ours, it seems to me essential that we should somehow or other provide for an increased production per man in the Ordinary writings this year. Why? For Company records? Well, not necessarily. I am not now urging and I never have urged high-pressure methods or an undue production of Ordinary or Industrial business. But I don't see how we can hope to cut down the number of finals and provide for the permanent staff which is essential to keep down the lapses, in either the Industrial or the Ordinary Department, unless we have a staff of contented men. And men are not going to be contented and satisfied unless their weekly income is sufficient to provide satisfaction and contentment. You know, as well as I, that without a reasonable production of Ordinary business the weekly income of the agency force is not going to be satisfactory.

The men who stay with us are men who are able to write a reasonable amount of Ordinary business. Add the commissions on that reasonable amount of Ordinary business to their other income and it provides a total income which is satisfactory to themselves and relieves them of the anxiety of personal financial problems.

Let me give you some figures that I have here. Eliminating all debits formed during the past year, 325 showed a net issue of $2000 or less for 1927. My friends, it is reasonable to assume that there were 325 finals just as sure as you and I are sitting here. There were 750 debits showing a net issue of over $2000 to $5000. I am not very sure of the permanency of the individuals who occupied these debits. Then we had 1653 debits which showed a net issue of from $5000 to $10,000, and 1541 debits showing a net issue of from $10,000 to $12,000. In other words, out of a total of 18,969 debits, 4269 showed a net issue of $12,000 or less for the full year of 1927.

Now, my friends, I should say that there was a fair chance of a large number of the Agents on these 4000-odd debits deciding before the year was out that some other business appealed to them more strongly than that of writing insurance for The Prudential. In other words, they were not writing enough Ordinary to satisfy themselves in the way of financial return. So that, I say again, it seems to me that the problem that presents itself to you men here this morning who know how to write Ordinary, who understand perfectly the way in which that may be accomplished, that your problem as Superintendents, as Assistants, and I am speaking particularly to you Agents who are here this morning and know how to do it, that your job during this year is to show the men of your staff who don't know how to do it, how they can do it, in order that we will have them with us at the end of 1928! (Applause.)

I realize perfectly in what I have said—and it is said not in the way of criticism, but in the way of suggestion—that it has not been entirely your fault, or the fault of those in the home office, that the results this year have not been what we desired. I realize that there has been more or less unemployment. I realize the fact that there has been a lessening of the values which individuals attach to the dollar today. As it has decreased in purchasing value, the individual seems to acquire less appreciation of the value of policies in small amounts. I realize the fact that there is in this age of extravagance in which we are living great temptation to turn these Industrial policies in for cash surrender. I realize all these things have been a handicap upon your efforts, but my friends, the fact that a task is a *hard* task never yet discouraged the Prudential field force. (Applause.)

The fact is, we are always going to have more or less unemployment. We are always going to have the temptation to surrender a policy in order to provide some slight fund for present enjoyment. I want to ask you men to give renewed thought to reducing the number of policies turned in for cash surrender. I never could see the reason for a cash surrender clause in an Industrial policy. The amount of cash which it is possible to return under the modest premiums that are paid is certainly not commensurate with the protection which the policy affords. It must be that for some fleeting pleasure, for some slight enjoyment, that this protection which has been taken out because the individual felt he needed it, is surrendered for the few dollars that a cash surrender on an Industrial policy provides.

It is not a situation such as is provided for by the Ordinary policy. I can understand there are times and circumstances under which it may be a wise business procedure to turn in a policy and obtain the money provided for in the cash surrender clause, but that situation is not paralleled in the Industrial policy. I would much prefer to see to it that the value it had was used to continue the policy in force, and to provide the protection which the individual needs far more than he needs the few dollars that a cash surrender will give. I want to urge upon you men that as it is increasingly difficult, by reason of the lessening value which the diminishing purchasing power of the dollar places upon these policies, to prevent cash surrenders, to renew your efforts to hold them down. You know, as I know, that the policies of the Industrial Department surrendered for cash ought to be kept in force in practically every instance. (Applause.) I want to ask you to use your utmost efforts to see that the best interests of our policyholders are conserved by keeping in force the protection which the Industrial policy gives to them. (Applause.)

Now, I realize the fact that certain conditions handicapped us in our efforts during the last year, but it seems to me that we have certain aids which we can bring into use in the solution of this problem. I have mentioned writing more Ordinary business. I believe if we could keep this Prudential army of ours intact for one year, we would show the greatest reduction of lapses that the world has ever seen. I am sure that we should make a record in production and we should show a record in conservation and all the other matters which go toward the betterment of this business such as no company in the world has been able to obtain. So, my friends, I say that more Ordinary should be produced.

Another matter we have to give consideration to is this: In order to encourage this average man that we are talking about and to put him in a position where he can do more for himself and more for his policyholders and more for his family than he has done before, he must be given help along the line of education. We have ceased selling insurance by haphazard methods. The time has gone when you could go out, simply taking a policy and plastering it upon an individual, hoping that it would remain. You can't sell it easily in the first place unless you are familiar with the problems of the individual and seek to apply, through knowledge and skill, the policy that will best meet his needs. You can't keep that policy in force when it is once sold unless you can correctly diagnose the situation and apply the remedy. Under those circumstances, the educational efforts which the Company has been making for the past year are bearing fruit.

There has never been a time, we can truthfully say, that we have had as highly a developed field force along educational lines as we have today. And those efforts, my friends, we should continue. But if we are going to continue them, and you are going to develop a condition under which we can analyze the individual needs and apply the individual policies to meet those needs, then we as a Company must give consideration to those broader problems in order that we may provide you with the policy which meets the individual need.

This we have sought to do in the new Monthly Premium policy, because we have realized the fact that on the debit there are those who prefer to pay premiums monthly. We have provided in this new Intermediate contract a policy which meets that preference, giving more protection for the same amount of money than the Industrial, and, necessarily, somewhat less than the Ordinary. Therefore, you now have a complete schedule: The Industrial for the weekly-payment individual, the Intermediate for the man who prefers to pay by the month, and the Ordinary where quarterly, semi-annual or annual payments are preferred.

In other words, my friends, we have added to your equipment to supply the policy needed to in the best way meet the individual situation. We have taken nothing from you, but we have given you a policy which we believe meets an economic need of today. I am not making any allotment in regard to the production which we will expect in connection with that policy. I am only wondering what will be the response. I believe that you will agree with me that it is a forward and progressive step upon our part, that it is a real aid to you in doing that task which you have to do, the task of bringing Prudential protection more widely and broadly to the American people. I think it will not be a very arduous task to have one policy per agent issued each week on this new form. I am just wondering whether this is not a low mark, and whether it is not a mark easy of accomplishment, and whether, when we meet a year from now, you won't find that this aim has been exceeded. I merely suggest to you that in the production this year along the line of the new policy, this is an easy and simple mark for you to strive for.

There is one more thing that seems to me will aid us in the accomplishment of these purposes that we have in mind, and that is, the advertising which we have been doing. We have tried to bring home both locally and nationally the work in which you are engaged. We have tried to adapt our advertising to meet and aid you in the doing of your task. We have so developed it that today it is on a more efficient basis and accomplishing more nearly the result we would have it do than it has ever done in the past. We hope to continue it along these lines in 1928.

One word more. It was our pleasure last year to hold six regional gatherings in which we brought together a larger number of those in the Prudential family than it is possible to get into any one room. I value highly the opportunities that are offered at such meetings to bring into closer personal contact the home office and the field. I realize perfectly the necessity, in order that the affairs of this Company be administered wisely and well, of our knowing what you men and what the greater number of men that we bring together in these regional meetings are thinking of, and so I welcome again the opportunity of continuing these gatherings in 1928 (Applause), in order that by drawing tighter and closer the bonds of fellowship and affectionate association we may be able, with a better understanding, to face the problems of the future and bring ourselves nearer to the accomplishment of the ideals that we hold in common.

Gentlemen, I said at the outset that this should be a day of thanksgiving, thanksgiving upon our part that we have been privileged during 1927 to accomplish those great things that are evidenced by the figures that I read to you this morning, a day of thanksgiving that we are a part of an organization competent and capable to accomplish great things for a community or for a nation, that we face a bright future, that those who come after us will take our place in working for the accomplishment of greater things for our fellow men. (Applause.)

The greatness of this business is not the fact that it offers opportunity for personal advancement and personal gain, although it does; the great thing in this business of ours is that it offers an opportunity for an ever broadening, ever widening, ever increasing service to our fellow men. And you and I, as we look over the record of The Prudential of the past, a great history to which we are common heirs, should also look forward to a greater future, realizing that while we individually may do little, combined we can in this hour, day and generation lay wide and broad a foundation on which other men in days to come may build a greater edifice than our eyes may ever see. That, my friends, should be an inspiration to new endeavor, it should be our purpose for new accomplishment, to place further and higher the Prudential banner that has in the past been significant of human accomplishment, a human aid to human needs, to ever widen the service that it may render, to ever increase the efficiency that it has, to hold high and stainless its honor and its integrity. This, my friends, is our task. It calls us to new endeavor, it calls us to new efforts. It calls us to unselfish service, but unselfish service in a great cause. That, my brothers, is the call I give you this morning. Advance!

CREATING A BUYERS' MARKET FOR INSURANCE[1]

JAMES E. KAVANAGH

Mr. Kavanagh, Second Vice-president of the Metropolitan Life Insurance Company, New York, delivered this address before the Pittsburgh Life Underwriters' Association, Pittsburgh, Nov. 22, 1928.

MR. CHAIRMAN AND GENTLEMEN: One year ago I had the pleasure of addressing a meeting of life insurance men in London, England. The meeting had been called by the editor and proprietor of one of the leading life insurance journals in England. He also conducts a school of life insurance salesmanship. A special effort was made to have an unusually large meeting, and I was told that a record had been established that evening in honor of my being present to speak. The committee had made a special effort to have present not only the students who were taking the course, but the representatives of other insurance papers and the representatives of life insurance companies also. Upwards of fifty persons, including two or three women, attended!

The picture is a pathetic one when I contrast it with the gathering before me in Pittsburgh tonight, and I am brought to a keen realization of how advanced we are in this country in the matter of life insurance practices as compared with conditions obtaining in Great Britain. There is no National Life Underwriters' Association of Great Britain. So far as I know, there are no local life underwriters' associations in any of the cities. Probably one reason that there are no associations is that in any average city no building could be engaged that would be large enough to contain all the men in the city who are permitted to write life insurance. The writing of life insurance in Great Britain is, in a sense, everybody's business. The lawyer, the doctor, the friend, the undertaker, the student, the stenographer, the real-estate man, the banker, can take an application and get the commission on it. Not only can he get the first year's commission, but he can get the renewal commissions as well. The result is that when the average well-informed man decides to take insurance, he wants to take it direct with the company as an agent and get the commissions and renewals himself.

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[1] By permission of the author.

Perhaps at no time, even in the early days of life insurance, was there, on this continent, such a loose system of underwriting as that which obtains today in Great Britain. I refer to this simply by way of contrast so that you may realize how fortunate you are as life insurance men that the business in which you are engaged has been elevated to such a high standard of professionalism—so much so that in no state in this union can a man write an application for life insurance without first obtaining a license. Not only must he get a license and be duly appointed by the company he represents, but in all the better companies he is pledged to refrain from making any rebate, and in practically every state in the union he violates a law if he rebates a premium.

This protection afforded the underwriters of life insurance in America has not been brought about by accident. It is the result of intelligent thought and unselfish effort by those who have pioneered in the life insurance field work. No more notable and outstanding man in America in this respect has appeared on the horizon than the late Edward Woods of this city, whose untimely death was a great loss to the insurance world, particularly to the field men.

May I congratulate you as a body of men that you have selected life insurance as your chosen field? Your success is possible only through the success of other people. You cannot succeed through other people's misfortunes. If you are to be sucessful, it will be because you will be influential men, influencing your fellow men in habits of thrift, foresight, and business practices.

When you undertook to represent your respective companies you really undertook a dual task; first, to represent your company, and second, to educate or tutor a certain portion of your constituency. Whether you know it or not, you really undertook and are today engaged in a task of teaching your fellow men to become better citizens. True, you have no particular academy or college or university to which you repair morning after morning to deliver lectures to students who gather at stated hours as do college professors and teachers, but you have your pupils waiting for you. They are ready for you from the time they eat their breakfasts until they go to bed. More pupils are waiting for you than you can possibly teach. You, therefore, have to select your pupils—and that is fortunate for you. You have the choice as to the city in which you may care to operate. You have your choice as to the portion of the city in which you may care to operate. You have, to a very large extent, your choice as to the type of pupils you may select.

I like to think of the life insurance field man as an educator. I have always so regarded him. I never could, and never will, think of him as a "canvasser"—as a "solicitor," as simply an "agent" in the commonly accepted meaning of the last word. So, gentlemen, I feel greatly privileged in appearing before you—a body of educators—to talk about one particular phase of your activities, of your privileges, or, as some of you may regard it, your tasks.

That part of our country known as New England has enjoyed for many years a wonderful prosperity, chiefly due to its large manufacturing industries. Of recent years it has been slipping. Much of its textile business has gone South or to the Middle West. Similarly, much of its leather business, its shoe business, its jewelry business, its novelty manufacturing and other lines, have felt the competition that has come from other sections of the country. Things had grown so serious that about two years ago a group of business men organized what is known as the New England Council consisting of thirty-six men—six from each of the six states that make up New England. They provided a budget and proceeded to find out what was wrong with New England. The survey is continuing, directed by active committees of the best business men in New England. Much has been found out as to why New England was slipping. The fact-finding committees that were appointed investigated New England from many standpoints. For example: natural resources; power; finance; convenience to market; advertising and publicity; modern machinery and plants; mechanics of business; humanics of business.

It has been most interesting and highly profitable to the New England business men. They have learned much about themselves. One thing in particular was brought home to them to which I should like to direct your attention for a moment. That was the revealing to many a manufacturer of something that he had not known before—the introducing into his vocabulary of a new phrase, namely, "A Buyers' Market." In the years gone by, the average New England industry had grown rich and prosperous by manufacturing its particular line of goods and then sending out through the country drummers with samples, who sold or took orders for the goods that were manufactured by their respective plants. For example, a boot and shoe manufacturer who made ladies' high-topped laced shoes, sent his traveling salesmen into all parts of the West or South placing orders. The merchants bought what the travelers brought to them in the way of samples, and the public, in turn, bought from the shelves of the merchant. All that has changed, or much of it has changed. If that same manufacturer continues today to send out his travelers with high-topped laced shoes for ladies, he will soon be forced into liquidation, as some manufacturers already have been. The shoe manufacturer has learned that the women of America know what they want. They *buy* what they want. They will not buy what they do not want. They have learned through travel, through national advertising, through movies, through many other media, just what they want to buy.

This change of attitude of the American housewife typifies what is known by men in the trade as a Buyers' Market, and the most enterprising of the manufacturers are catering to it. The more successful they are in catering to this fluctuating, rapidly-changing and delicately-balanced market, the greater are their profits.

STYLE AND DESIGN

Another phrase that goes with this Buyers' Market and is closely akin to it, and which also has become a part of the vocabulary of manufacturers, is "style and design." The manufacturer who can create new styles and new designs, then pass these on to the American public, is the one who is making large profits. Style and design in industry have become such definitely recognized factors that some of the highest priced employees of our larger corporations devote their whole time and thought to style creation or to the building-up of new designs or new models. Probably no other one factor has more to do with the success of the automobile industry than this important factor of style and design or models. Everybody wants to have a next year's model even before this year's is finished.

Now, the foregoing is referred to in order that I may call to your attention more effectively the fact that there is today a Buyers' Market for life insurance and that there is also Style and Design in life insurance. New models can be gotten out almost over night and the clever distributor can bring not only to his old customer, but to his prospective customer, every month or more frequently if he cares to, something new in the way of life insurance protection.

A very important book has come out recently entitled *American Prosperity*. It reads like fiction as it cleverly portrays the various movements going on in American manufacturing and business activities, all of which are contributing much towards the prosperity of the nation. This book on American prosperity might very well have added another chapter, outlining the causes for American prosperity, and perhaps it is the most important chapter of all, a chapter on life insurance. Unquestionably one of the reasons that the American manufacturer and merchant is so prosperous today is because a very large proportion of the American public has learned how to create estates through the machinery of life insurance. A man can utilize a very small portion of his annual income as a premium towards life insurance, which will guarantee to his wife and to his other dependents a reasonable estate, thus taking a load of anxiety from the man and leaving him free with the rest of his earnings or capital to invest. This makes of that man a potential buyer of things other than life insurance, that he would not be if his entire estate consisted of the small amount of accumulated savings that he has turned over to the life insurance company. He is more venturesome, more courageous, to buy a house, to build a home, to buy an automobile or a radio, to travel, to undertake to educate his children, to do many of the modern things that young America does, and which would have been regarded as highly extravagant by his ancestors. But the young American regards it as good business because he has "hedged" against the possibility of untimely death. His life insurance has made him a vigorous-souled individual, has robbed him of timidity, has made him ready to treat himself and his family to some of the luxuries and comforts of today.

This attitude of mind of the average workman, of course, has had much to do with American prosperity. It breaks down sales resistance which would exist were it not for the wholesome influence exerted by the billions of dollars of life insurance estates made possible through the activity of American life underwriters.

But that is not all. These billions of dollars of life insurance estates are provided for by level premiums which go into large reservoirs known as the treasuries of life insurance companies. They have become the largest reservoirs of money in the world. Billions and billions of dollars which really belong to the insured public of America are assembled in the treasuries of the various insurance companies and put to work, providing a permanent source of supply to the enterprising contractor, builder, manufacturer or merchant, who in turn can provide conveniences and comforts for the very people whose money made the life insurance companies.

Back of all this wealth of the life insurance company—back of all this activity on the part of the American public through its systematic saving in life insurance—stands that modest but tireless and intelligent worker, the teacher—the life underwriter, the man who has worked night and day, who has sometimes stood rebuffs, who has been patient with stupid, and dull, and selfish students, who has broken down ignorance, selfishness, thoughtlessness, thriftlessness, and has built independence of character into the moral fiber of millions of American citizens.

Gentlemen, I salute you and turn directly to the theme of the evening: "Creating a Buyers' Market for Life Insurance." May it not be that you and I can learn from the merchants and manufacturers of the country as we study their methods and apply some of the underlying principles of business to the prosecution of our own enterprise? May it not be that we can see a *Buyers' Market* and, seeing it, act accordingly?

Style and Design in Life Insurance

One of the first persons to begin with is one's self. How pleasant the task of the life underwriter would become if every morning, on arrival at his office, there were before him a number of letters of inquiry, or of letters of invitation to call and show various citizens how to build up estates. How pleasant if numerous telephone calls poured into the underwriter's office day after day inviting representatives to call at certain addresses, to come down to help solve certain problems. If, for example, these inquiries should come in as follows: "Please send a man down who will tell me how to protect my wife and children against need in the event of my untimely death," or, "Please send a man to my office to explain to me how I can with certainty provide an educational program for my boy or girl," or "Please send a man who can tell me how I can protect my home against a mortgage foreclosure in the event of my death," or "Please send a man who can tell me how I can definitely provide an income for myself as long as I live," or "Please send a man who will tell me how I can protect my business in such a way that in the event of my untimely death its financial value to my family or partners may not be ruined."

Again, I say, what a delightful job the underwriters' would be if such queries poured into the offices day by day. Yet those queries are pouring in and they go into every office. Some offices hear them. Some offices have receiving sets that are tuned in, and every day somebody in that office is listening in—listening in for the *S O S* call that is out on the air in every city, night and day. The offices that have these receiving sets and have men to attend to them are quickly rewarded. The men are sent out to attend to the calls. The calls are attended to intelligently. The people are grateful for the information brought to them. The relief of mind which they enjoy, the enhanced estates which they feel themselves the possessors of, the greater confidence which they now have as to the future, make them in turn very glad to reward the underwriter or educator who has responded to their call for help.

Now it does not require a great deal of imagination for a man to act exactly as he would act if he received such calls. Those calls are not vocalized. They are not made as specific as they would be if they were in letter form or on post cards or over the telephone, but the calls are there just the same. Therefore, my point is this: that if we want to have a Buyers' Market for Life Insurance, we must *create it* and we must *create it within our own minds.* You and I must have ears to hear. We must very definitely and very clearly understand and confidently believe that our acquaintances are inadequately protected. Many of these acquaintances do not know it. Many of them cannot specifically tell us what they want, but we can interpret to them their wants and we can gratify their wants and needs. The want is there whether or not the individual is capable of describing it. The fact of the matter is that the American people are woefully under-insured. Very rarely can you find a man who has enough life insurance to continue as an invested fund to earn for his famliy the income that he can and does earn himself.

Once an underwriter can believe the foregoing, he will take himself in hand. He will learn to manage himself in such a way that he will cease trying to go out to get people *to do things for him.* He will go out *to do things for others.* He will cease to be of the mendicant type of mind and will become the philanthropist—the Santa Claus—the Show Man. He will go out with a smile on his face and in his heart, with a confidence that is radiated in his manner, in his eye, in his voice, that at once becomes contagious.

A few days ago I read an article describing the habits of dogs. The writer expressed his belief that through the sense of smell, dogs can detect fear on the part of the individual approaching them. He expressed the belief that fear produces some kind of a chemical reaction in the blood. Thus an odor is created which the finely-sensitized nostrils of the dog can detect. He acts accordingly. He bites. It was claimed by the writer that a person who is not afraid of a dog shows it either by the look in his eye or the sound of his approach, or by the failure to exude this "scare odor." He thus at once wins the confidence and respect of the dog.

I wonder if something similar doesn't take place when individuals meet. I wonder if the frightened, hesitating, doubtful, uncertain insurance representative, walking into the office of the successful business man, does not in some way—through the tread of his footstep, the tone of his voice, the glint of his eye, the carriage of his shoulders or head, or in some other delicate way either betray fear or reflect confidence, as the case may be? If that be so, and there are many who think that it is, ought we not as students of ourselves, take ourselves in hand and learn to master ourselves? Socrates, thousands of years ago, wrote this true sentence: "To know thyself is true progress."

If it be that any of us lack confidence in ourselves or our goods or our company, it behooves us to readily take ourselves in hand. We are sick, psychologically speaking, and we need a doctor. We need to be made strong and sturdy. We need to have hardy souls. We need to be courageous. A man can grow to be courageous—can grow to be hard-souled—just as a man can grow to be muscularly strong and physically hardy. There is no doubt about it.

Many, if not all, men need mental baths every day to keep themselves fit, just as well as they need physical baths. That mental bath can be brought about through the constant refreshment of one's mind of the great value of his profession—underwriting life insurance; of the great strength and value of his life insurance company; of the great merit and benefit that his various insurance contracts have for the public with which he operates.

Let us assume that a representative has himself well in hand—has a proper perspective of his proposition, his contracts, his company and his public or his prospects. Will he not act? Can he not make himself act as he would if the public invited him by letter to call on them, or invited him to do so by telephone? Can he not bring himself to act in a specific and definite way just as if a specific and definite question had been written to him? Why can not you life underwriters take your contract or contracts and fill your minds with the outstanding benefits that those contracts will give the public and forget all about the fact that there is a premium—the very thing that the public hates—attached to the policy? Why not saturate your mind with the *benefits* that go to the man's beneficiaries or himself? Why can you not get these so tersely and clearly and indelibly in your own mind that you can tactfully and cleverly put them in front of the prospect?

The underwriter can go in this month with a certain style of policy—it may be an installment settlement—and show it with enthusiasm. He can go in the next month and show the advantages of the extended insurance clause. He can go in the next month with an entirely new style and design of contract, one that may be a combination of $5,000 Whole Life with $5,000 Twenty-Payment Life, together with a $5,000 Ten-Year Endowment contract. He can package it in one proposal and attach to it the double indemnity benefits and the total and permanent disability benefits, and with enthusiasm point out to the man what this $15,000 contract will do for him and his family. And so on *ad infinitum,* a man who knows his goods will learn to show them. If his goods are good goods, the Buyers' Market will take care of them. If he is showing the present-day model he can with certainty assume that a certain number of people will buy from him.

If he will forget the selling and concentrate on the showing—if he will cease to think of himself as a salesman and think of himself as a showman, as an educator, as a giver and not a getter—he will think better of himself; he will reflect this in his countenance, in his conversation and in his conduct.

It is a wonderful thing for a man to undertake to do something that he knows he can do. It is a somewhat nerve-racking undertaking to start out to do something that a man does not know whether or not he can do. It makes him overcautious; it makes him timid; it makes him less sure of himself. It makes him have an "inferiority complex." But if a man starts out to do something that he knows he can do, he is not timid; he is bold; he has courage; he has confidence. He has a "superiority complex," as he appears before his audience. He is not *trying* to do something. He is going out to do something that he knows he can do. He knows he can show the benefits of his policy. He keeps off debatable ground as much as possible. He leaves the premium at home. He does not enter into arguments. He does not undertake to give advice. He does not undertake to tell people what they ought to do. He simply goes out to show what his goods can do, will do and are doing. Today he goes to a prospect either personally or through the medium of a letter or a pamphlet and shows how his life insurance company helped build a skyscraper, helped finance a modern hotel, helped erect a large department store, helped to build a railroad, helped to install a water-works system, helped to finance a public utility, helped to finance a state government. He will go tomorrow, or send literature in his place, showing how John Doe's widow is receiving $250 a month for the rest of her life. He will show how his company paid one hundred claims in his city last month. He will get the figures of all the life insurance companies and show how many millions of people bought life insurance last year, how many thousands of families received direct benefits last year. He will get similar figures for his own company. He will be constantly educating his prospect on matters pertaining to life insurance. By and by his prospect becomes so well informed that he seeks to join in and participate with his fellow men in the building of railroads, in the erecting of department stores, in the financing of hotels, etc. He will feel that he ought to be in style and have an income contract for his wife or an educational policy to take care of his children or an annuity contract to take care of himself or his charities or his other obligations.

One thing remains after that; it is the further managing of the Agent himself. He will reach the assumption that his goods have made a favorable impression, that the time has come or will come soon when his prospect will want to sign an application or to fill an order. He will imagine this so definitely and clearly that he will sit down and fill out the application blank. Then he will imagine that the prospect has written or telephoned him to bring it around. Then he will take himself in hand with his application in his pocket and will go down at 10 o'clock tomorrow morning with a smile on his face, confidence ringing in his voice, with a cheery "Good morning," and say: "Here I am, here's this paper." He will act exactly as he would have acted had he received a written request to bring it down. Then if the applicant is not prepared to sign, if the underwriter is at all a fair actor he can *look* the surprise that he would have looked had he received such an invitation and then been turned down. The matter of writing applications and getting signatures is largely a matter of acting. The chief *actor* is the underwriter. Unfortunately, he is often the chief *talker*. *Actors* get better pay on the stage than mere *talkers*. The high-priced stars not only have good voices and good personality, but they have that wonderful qualification of being able to act. The public likes *good actors*. It pays them well as is evidenced by the high-priced life underwriters in this room tonight.

Action somewhat similar to that just outlined will, I believe, result in a Buyers' Market. Do not think it is a Sellers' Market. Create a Buyers' Market in your own mind and live in an atmosphere which tells you constantly that people will buy good goods if they are properly shown.

THE RIDDLE OF THE SPHINX[1]

FRANKLIN H. WENTWORTH

Mr. Wentworth, Managing Director of the National Fire Protection Association, Boston, delivered this speech at the banquet celebrating the fiftieth anniversary of the Chicago Board of Underwriters, Chicago, Feb. 21, 1911.

When I was asked to be present and speak tonight, I was assailed by a feeling of doubt as to whether anything I might be able to contribute would justify by its value my acceptance of the gracious invitation of your Committee. It is so easy to talk; and so difficult to say anything worth while. But fiftieth anniversaries come but once in any given life, and my desire to look into the faces and clasp the hands of the men who first brought me in touch with the fire insurance world, overcame my feeling of personal modesty and landed me here upon my feet before you.

A man in Boston said to me the other day, that when I come to fifty, I must bid goodbye to my imaginative faculty forever. "After fifty," said he, "imagination is quenched by active life. After fifty the mere act of living calls all our powers into requisition."

In Boston such opinions are intended to be final. They have a way of saying things, with such utter gravity, that not to believe them convicts you of ill-breeding. Any heretical ideas that wish to come in from the West must come in by a night train and avoid the Back Bay hotels. I was born in Chicago; I went to live in Boston;—and I know.

But a man is never crushed by a calamity he may be able to avoid. Declining to wither under the predicted atrophy of my imagination, I have formed a clandestine resolution.

If, when I come to fifty, my torch of celestial fire should hazard a post-mortem flicker, I shall take advantage of the lower rate in upper berths and come back again to Chicago—where I know that you will let it shine.

For you, yourselves, have come to fifty and your life is just beginning. A God-made man is mortal: he comes to his end with his four-score years and ten. But a man-made man—a corporate body—may live forever, renewing his youth with new blood and new life. It is well that this is so with you; for you may perhaps need both the enthusiasm of youth and the wisdom of age to meet the problems that already are crying for solution.

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[1] By permission of the author.

There is a certain old fable regarding the Sphinx, which men have been interpreting after a different fashion ever since they began to preach and write. The Sphinx was said to sit in the highway and put riddles to all who came. Whoever could not answer was swallowed alive; whoever solved the riddle slew the Sphinx.

The toy age of the world has gone; the objective forms of dragons and griffins no longer terrify our imagination; but there has arisen in their stead, to confront the men of this modern generation, a huge, impersonal, unmuscular Sphinx, whose riddle there is need of firm hearts and clear brains to answer.

We could make no more fatal mistake than to assume that our fraternity faces these perplexing problems alone. Our whole modern civilization is in the melting pot; and the questions which are being put to us are being put to all other men. Our developing social and industrial relations have grown so complex, and we have become so intimately dependent one upon the other, that the whole social organism now quivers with the shock delivered to any part of it.

There is no mistaking the nature of the modern Sphinx's riddle. It is that we justify to each other and to the state, the morality and social usefulness of our occupations. One by one every gainful occupation not directly concerned with the production of wealth is being brought before the bar of public opinion and questioned as to its right to existence. In such a crisis any evasion, any attitude of concealment, anything short of frank and open expression of principles and practices, may be fatal to the welfare of the witness.

We should be profoundly grateful that we ourselves have nothing to conceal; that we can offer a reasonable plea for justification; that the business of fire insurance is one which, under the present social order, is legitimate and beneficent and indispensable to the common welfare.

It would not become me to bring to you, the friends and associates of my first years of service, any discouraging word at such a time as this. I am not insensible to the attitude of unreasoning hostility which confronts our business in many parts of the country today; but it is because this attitude *is* unreasoning; because it has an economic basis that confuses public judgment,—which public judgment it is possible to successfully reverse—that I appear to you tonight not as an apostle of despair, but as an apostle of hope. I profoundly believe that if we attack our present problems with frank intelligence they will open out in a peaceful and happy solution.

In Boston there is an Irishman;—that is to say, there are several—in fact we have one, at present, for mayor. (I cannot tell you his name; for it is the mark of the true Bostonian to be unable ever to recall the name of the Mayor.) The Irishman to whom I refer is unlike most of his kind. He is a serious Irishman, and a serious Irishman is the mournfulest thing on the face of the earth. In a speech in South Boston the other evening he declared in a frenzy of dejection, "The cup of Ireland's miseries is running over,—and it ain't full yet." Looked at from a superficial standpoint, we are apt to be moved by a feeling of similar concern as we regard the host of unfriendly shafts leveled today at the business of Fire Insurance. With every edition of the daily press comes the intelligence of some new legislative attack which carries on its very face the condemning brand of economic ignorance. The people, smarting under the impoverishing blight of our colossal fire loss, are now blindly attacking the only men who have tried to save them from it. Who, beside ourselves, has exerted every possible effort to encourage better building, that this stupendous folly might be mitigated? Who knows how many times some modest faithful inspector of the Chicago Board of Underwriters, working far from the limelight, may have saved Chicago from disaster? Upon us, because of the nature of our business has been carelessly thrust the mighty responsibility of a whole people's neglect. And under this impossible burden one company after another has gone down to an honorable death of reinsurance, where any other commercial venture would have gladly crept behind the screen of bankruptcy. There are few other forms of commercial enterprise whose ethics have been so high. Groaning under this huge and senseless vicarious burden, have we rebuilt Chicago, and Baltimore, and San Francisco, and Atlanta, and staggered again to our feet only to be struck down at last by public ignorance? I do not believe it.

The result of the recent legislative investigations in Illinois and New York is indicative of what we may expect from inquiries honestly conducted. Each of these proceedings, begun with the intention of punishing us, ended by convicting the public which demanded the inquiry; convicting it of arson and carelessness, and social neglect and irresponsibility. Each of these proceedings makes clear the fact that the Sphinx we must first slay is the Sphinx of public ignorance.

The people must be patiently taught the principles of fire insurance, and the incidence of the fire tax, for we must have their cooperation, and not their unreasoning hostility, in the solution of problems yet to come. No man, nor body of men, can successfully face the frightful fire problem of the modern city harassed by enemies in the rear. All our attention and intelligence must be focused upon the matter of our common safety. In the face of our intensifying applications of electrical energy, our growing use of dangerous gases and high explosives, our dwindling water supply due to deforestation or climatic changes, how are our congested populations to be preserved from their own destruction? New York is not a city. New York is a disease. There can be no health in a man with all his blood congested in the back of his neck. There is nothing normal in the settlement in which, every day, human beings travel more vertically than they do horizontally,—and a holocaust would pile them four deep in the canyon-like streets. It is terrible to think that a possible earthquake might at any time of the day seal up in a common tomb a hundred thousand men and women in the subways and tunnels of New York. How are we to meet such problems? What is the remedy? Must we decentralize our population? If so, how are we to do it—with the great economic forces of our civilization antagonistic to such effort?

We must protect our cities as they stand, we must guard our priceless congested values, we must find the way to safeguard the lives of our people until a new social era shall bring a return to more normal living.

Can we do it? I believe that we can. Every physical problem is but a problem of the mind; and the Sphinx of the future cannot long block the highroad against the onslaught of the intellect of man. The age of Physical Force is dead; it has been crowded into the historic lumber room by the age of Nervous Energy, and at the lever of this mighty engine sits the Human Mind peering into a yet more wonderful future. What is the lesson of the ether telegraph, save that there are subtle essences in the universe with which the mind of man will one day act in a cosmic harmony? How can mere brute force prevail against the lightning of the intellect, with its mastery of the elements of life? Intelligence,—the God-like attribute of man—subtle, intangible, soft as a snow-flake, irresistible as steel, this is the weapon with which we must meet and put to flight man's direct enemy—Ignorance.

Yesterday, as I crossed the State of Michigan, great white flakes of snow fell softly against the windows of the Pullman, and my mind flew back to a day ten years ago, when the power of collective effort was indelibly impressed upon my mind. Enroute to Omaha, a heavy train on which I was a passenger rushed swiftly along over a bare and blackened earth. The snow began to fall, slowly at first. Its gentle flakes fell into the hot smoke and exhaust of the engine and were consumed in a breath; they fell upon the hot boiler-jacket and were licked up in an instant by the heat; they fell under the wheels, and against the fender, and were destroyed by the million as the great heavy train rushed on. What chance for life or influence had a snow-flake against sixty tons of iron and steel driven by the power of steam? Countless millions were hurled aside, unwept, unsung, a sacrifice to the iron horse and the necessities of men. But swiftly, softly, more and more thickly fell the tiny flakes. Where a million were consumed, a million more leaped to the sacrifice—flung their star-like shapes under the roaring hoofs of the monster, as if glad to die to serve the collective life. But soon, ah, wonderful, in spite of its mighty strength the great locomotive's pace began to slacken, more and more slowly it moved, until at last with an expiring burst of frenzied power, it stood still, panting and helpless in the whirling white.

Such as the power of the snow-flake is the power of collective human thoughts. Light, ethereal, singly and alone they strike the huge engines of ignorance only to be brushed aside; but one by one these snow-flakes of the mind communicate themselves to other men; slowly and silently as the snow, the crystal cohorts of intelligence begin to check the devastations of the enemies of light, until of a sudden we discover that the great terrifying bulk which has moved us to such fear is but a phantasm, a hollow thing, a bugaboo, a tale to scare a child.

BY-PRODUCTS OF RAILWAY ACCOUNTING[1]

JULIUS H. PARMELEE

Mr. Parmelee, Director of the Bureau of Railway Economics, gave this address at the annual meeting of the Railway Accounting Officers' Association, Atlanta, Ga., May, 1928.

MR. PRESIDENT, LADIES AND GENTLEMEN, INCLUDING FELLOW-MEMBERS OF THE RAILWAY ACCOUNTING OFFICERS' ASSOCIATION: I am most deeply honored by your invitation to appear before the Association and discuss with you some of the collateral phases—what I venture to call the "by-products"—of railway accounting.

At this particular juncture, with a momentous year in accounting accomplishment behind you, and many important committee reports ahead of you, I offer you a topic for thought. I ask you for a moment to relax from your more technical labors, and to consider with me certain aspects of your profession distinct from the task of recording the revenues and expenses of several hundred thousand miles of railway line.

These aspects may be regarded as the by-products of railway accounting. One of my bright young colleagues has named them "accounts elusive," as denoting those complicated but effective mosaics, pieced together from the results of property investment, construction, maintenance, transportation and other accounts, that are called on the one hand "History," and on the other hand "Forecast," in so far as they portray the past or suggest the future.

Curiously enough, the Balance Sheet of "Accounts Elusive" is not yours or mine to make up, either for railroad or other commercial enterprises. People called "historians," and sometimes others call "poets," do this for us. Because accounting records have been so frequently used in recent historical writing, and there is such an effort to obtain early accounting records on which to base historical and social studies, I feel that we may examine our own railroad records, to see what undiscovered by-products they disclose.

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[1] By permission of the author. Reprinted from a pamphlet published by the Railway Accounting Officers' Association, Washington, D. C.

What Are the By-products?

In the manufacturing industry, we hear much nowadays about by-products. The packing industry, for example, is said to utilize every part of the hog except his squeal. Gasoline, once a by-product of the petroleum industry, has now become its principal feature. By-products of the coal and coke industry have grown to larger and larger proportions. The same is true in varying degrees of other manufacturing activities.

May we find some by-products, also, in the railway accounting field? The inquiry opens up some vistas of interest, because the railway accounting industry has its by-products, they bulk large in the field of economics, and they are worthy of consideration and discussion.

Let us enter in the record a few of the principal by-products, grouping them under three general heads: Historical, Social, and Economic.

Historical

A railway official remarked to me the other day that all poetry had gone out of railroading. He meant, I take it, that operating a railroad has lost much of the romance that characterized it in the early days, and that we have brought it to a uniform, even though efficient, level of standardization.

Many will agree with this remark, while many also will disagree. Be that as it may, the history of railroading, and the things that are making history today, are full of the romance of the pioneer. It can never be taken away, no matter what the future shall bring. And that romance is portrayed not only in the narratives of the men who built our railways, not only in the history of their early operating achievements, but also in the record of those operations that is set down in the seemingly cold figures of the accountants.

Seemingly cold, I say, but actually teeming with life and warmth and vividness.

Let us cast back a few centuries, and consider the part the accountant has played in the history of the world. Even in the Bible we find references to accounting, as in the case of the steward on whom the master called for a statement of his accounts. One of the most interesting chapters of Hebrew history is that pertaining to Joseph, who became the chief steward of Pharaoh, stored away vast quantities of grain against the lean years, and kept a careful account of what he had done. That is, he maintained a record until the crude methods he could employ broke down; we are told that he gathered wheat "as the sand of the sea, very much, until he left numbering, for it was without number."

As the world rolled on, and countries began to trade with each other, the accountant was there with his records. The earliest merchants kept books, with the only idea of maintaining a current record, yet in those same books, of which a few have come down to us, there is spread before our eyes a most accurate picture of the social customs of the day. No truer history exists than was written into so-called dry statistics by the accounting men of medieval times.

It was no idle chance that the earliest organized European accounts were Venetian in origin. Merchant ships of Venice were the common carriers for an appreciable period in the Middle Ages. Venetian merchant captains brought back to Venice such improvements in methods as impressed them in their journeyings, among them the printing press, so that in 1494 there was issued from a Venetian press Pacioli's *Summa de Arithmetica,* one of the earliest works on accounting in existence.

One of these merchants of the Middle Ages—a Frenchman, Jacques Cœur—organized French commerce, transportation, and necessarily accounting, with a thoroughness and efficiency that helped to place his tottering nation on its feet. His motto was "To the Valiant Heart Nothing Is Impossible." He was director of all the organized transportation there was in his day, he was a friend to Jeanne d'Arc, and, of course, he was subjected to government persecutions.

When the crash came, one of Jacques Cœur's associates, Antoine Noir, evaded all spies and watchers along the highways and escaped from the kingdom, with—what? Jewels? A few. Moneys? Some. What else? What of value? Account books! The efforts of the Crown, first to apprehend Antoine and his treasures before he got out of France, and then to lure him—with the account books, of course—back to the kingdom offer material for a lively tale.

Perhaps the most famous diary in the world is that maintained by Samuel Pepys, Esquire, of London, during the ten years from 1660 to 1669. To this diary he confided a record of his daily activities in an interesting period of English history. In this same diary appear his personal accounts, which he balanced at the close of each year and so gained an idea of his financial and social standing. And no section of Pepys' *Diary* is of greater historical significance today than that part containing his financial accounts.

Account books of individuals and organizations, both in England

and during our own Colonial days, supply us with many human pictures of the social customs of those times. The historical value of these accounts is a by-product, but has become far more valuable than the original purpose for which they were kept.

Meanwhile, we have some strictly American "Accounts Elusive" of this nature. John Rusk, in Arthur Stringer's railroad novel, *Power,* outlines it when he says:

> I've written my name with steel rails across this wrinkled continent of ours, from ocean to ocean, with the street-globes of a hundred and eighteen new cities for high lights and a million and a half square miles of new wheat-lands for a background.

This is a succinct, startling, picturesque statement, but for the details of similar achievements, for sidelights and for trends, we must go to the accounting records of the railroads.

The mosaic of transportation history is made up of small and intricate pieces, some vivid as the reds of Venice, some black and dun like the great coal and ore shipments that underlie our modern industrial life, but all necessary to the completeness of the picture.

The earlier accounts of the pioneer railway companies of the United States were set up for no other purpose than to disclose the financial success of the venture. Today that phase has largely disappeared, but their historical value remains and grows greater year by year.

So it is that sometimes we should step outside of ourselves for a moment and look at our work in its relation to the history of our people. The future is ahead—the first thing we know it will be the present, and past experience tells us that it will soon be history. And in that aspect our railway accounting records will be among the most accurate histories of any period.

In the same way, every record maintained by the railway accounting profession has a value far beyond its disclosure of present-day results. It becomes a part of the historical record of the industry, and of the nation at large, whose value will in time outweigh the purpose for which originally set up.

So the accounting department of a railway has a most important function, extending far beyond the purely mechanical task of summarizing facts and setting them down on paper. If railway accounting were a mechanical matter only, a large part of your work could be relegated to machines. It would be nothing more than addition, subtraction, multiplication and division.

But your responsibility, as well as privilege, is to write into these records the real story—the romance, if you please—of railway service and results. Yours is the vital function of interpreting the economic facts of the railway industry. And this interpretation becomes a part of the economic history of the industry and of the country—a by-product that in future generations will greatly transcend the primary purpose of railway accounting.

SOCIAL

Some of the by-products of railway accounting are of a social type. What I have in mind is the extent to which the operating accounts and statistics of our railways supply information as to the broader aspects of human welfare.

Some of these aspects relate to the railway personnel themselves, some to the passengers and other customers of the railways, and some to the public at large.

Let us consider the social welfare of railway employees as revealed in your accounting records. First and perhaps foremost come the payroll records—those sheets that are prepared primarily for the purpose of an accurate statement of what is due each employee twice a month. But in drawing up those records, you are not only meting out justice to the employees, but are also creating an invaluable picture of railway wage levels, hours and earnings, and the kind of occupation according to which railway employees are classified. Our wage statistics supply a mine of information for the sociologist and the social student.

Take next the operating expense accounts, many of which have interesting social bearings. Here we may find information with regard to pensions and relief department work, advertising, and insurance; damage to property, to live stock, and to freight; the operations of dining cars, hotels and restaurants, and even stockyards for the handling of animals; many other activities that are only incidental to railway operation, yet must be carried on as a matter of obligation to the public, and must be recorded in your accounts.

The subject of pensions alone is an important topic of social discussion at the present time, and you may rest assured that your statistics with regard to railway pension systems, their cost, their rules and regulations, the number and average ages of men on the pension lists, and so on, are carefully studied and analyzed by many persons who have little interest in railway operations themselves.

Take again the general problem of operating safety. This involves employees, passengers, and the general public as well, for casualties incident to railway operation occur to all classes. Many of your accounts bear directly or indirectly on this vital question of safety of railroad operation, involving as it does the preservation of human life and limb.

Some of these accounts deal with the cost of personal injuries, including the care of the injured; the cost of clearing wrecks; the cost of crossing protection, signals and signal systems, the maintenance and operation of interlockers, and many other similar devices designed to promote human safety.

There come also to mind the statistics that are prepared by the roads, dealing with the number and kind of accidents that occur to passengers, to employees, to non-trespassers at highway grade crossings, and to other groups. Few compilations of railway statistics are so carefully studied outside the railroad industry as those dealing with the several classes of railway accidents, and the human casualties that result.

The Department of Agriculture, using a special fund obtained for the purpose, has alert persons out in the various farming communities to secure—by gift if possible, if not by purchase—old farm account books.

The Librarian of Congress in his 1927 report makes special mention of the gift of four volumes of the farm journals of "Shirley," on the James River, Virginia, covering the period 1816–1872, and says: "As materials for the study of plantation life before, during and after the Civil War, these records are of value."

The price data in these as well as other account books have contributed to the economic and social history of what some persons have declared to be our basic industry. In the same way, much of the statistical data assembled by the railway accounting profession has social value, entirely apart from its primary purpose. Railway price and cost statistics, as they are summarized from time to time under uniform methods, will supply an invaluable social record to future generations, revealing many phases of our national life.

Finally, I would emphasize the social side of railway service—its direct contribution to human welfare. When we say that the railway industry last year spent 800 millions of dollars for new plant and equipment, and distributed nearly 5,000 millions in operating expenditures, we are stating facts in statistical form. When translated into human terms, these same facts mean that the railways were transporting men and women on missions of joy and of sorrow; were hauling goods for the satisfaction of human needs and desires; were catering to the luxurious tastes of the many, by bringing them fresh peas in midwinter from Mexico, lettuce from Florida, and fruits out of season from many other points; were supplying work that supported a million American families; were maintaining sick and aged employees on relief and pension funds; were meeting emergencies such as flood and fire relief and other disasters; were supplying human wants in a thousand ways that would not ordinarily be noticed in railway records.

These are the social by-products of railway accounting—the unromantic records you spread out for the historian and the social student to translate into vivid pictures of the service rendered by the railways to mankind.

Economic

But there are other by-products, in addition to those that are historical or social. The most important is the economic value of railway accounting.

By "economic" I mean that phase which brings out the relation of the railway industry to other industries, and indicates its place in the economic structure of the nation.

In this phase, the assembled accounts and statistics of railway operaation acquire a significance far beyond that which they have when considered alone. For example, you recorded the fact, in 1927, that railway operating revenues aggregated the amazing total of 6,200 millions of dollars. To know this amount is of interest, especially when compared with the corresponding revenues of other years, or when broken down into its parts and sources, such as the freight service, passenger service, and the like. That is its significance from a strictly railway point of view.

But railway revenues acquire a special economic interest when compared with the total income of other fundamental industries like agriculture, the manufacture of iron and steel, or the production of motor cars and automobiles. Then and then only does the full significance of railway revenue begin to appear.

The same is true of many other accounts maintained by the railway accounting profession. Railway operating expenses, aggregating last year the tidy sum of 4,600 millions of dollars, have many angles of interest for the railway operator, the maintenance engineer, the motive power man, and other groups of railway officials. But this same item takes on new significance when the channels through which the expenditures flow are considered as parts of the great economic currents of the nation.

Do the railways pay out nearly three billions in wages every year? If so, what proportion of the national wage bill does that figure represent? What does it contribute to the general purchasing power of the country?

Do the railways purchase materials and supplies to the extent of a billion and a half dollars annually? If they do, then they must buy a large proportion of the national lumber cut, of the iron and steel output, of the production of coal and fuel oil, and so on through countless products of the nation's industry. These, too, represent economic contributions to the commercial activity of the United States.

Your records show a wide variety of ways in which railway funds are expended: for capital improvements; for wages and the purchase of materials and supplies; for taxes to support schools and good roads and other civic agencies; for countless other purposes. These billions of dollars poured into the arteries of trade represent a real economic contribution to the nation's welfare, and your accounts are what tell the story.

Again, railway traffic statistics have come to be the best known index of business conditions. Not only are the trends of the past subjected to analysis, but economists and business men analyze the current returns as an indication of present actualities and future possibilities. The problem of business forecasting has appealed to many as a fruitful field of study, and railway accounts and statistics enter largely into their analyses and comparisons, industry with industry and period against period.

A recent writer has commented on railway statistics as a barometer of business conditions, rather whimsically, as follows:

> I began to watch car-loadings, too. Here, apparently was something altogether different from brokers' loans. Apparently car-loadings were all to the good. Nobody asked what the cars were loaded with. It might be sawdust for all anyone cared. Nobody asked whether they were ever unloaded. You could dump the stuff in the river and nobody would know the difference. All you had to say was that more cars were loaded this week than last, and the financial community rushed out and bought U. S. Angel Cake and Associated Roller Bearings in a frenzy of optimism, confident that prosperity was advancing.

Under this rather facetious comment lies a basis of sound economic truth, that railway finances and operations have come to be recognized as an important economic index. These, and many other similar factors, measure the importance of the railway industry, and indicate its position in our economic structure as a whole. In supplying a basis for comparisons of this kind, the railway accounting industry is producing many valuable groups of by-products.

So I ask you, before you take up your committee reports and the other business of your convention, to give yourselves credit for producing more than the mere dry facts of railway operation. You are spinning a web of life, which is instinct with human interest, with historical value, and with social and economic aspects. You and I are writing history which, whether we realize it or not, will be studied with keen interest for its broader social and economic values long after we have passed out of the picture. These are the "accounts elusive" with which you are perhaps unwittingly working. These are the "by-products" of railway accounting.

AT THE GATES OF THE MARKET PLACE[1]

HARRY C. SPILLMAN

Mr. Spillman, Educational Director of the Remington Typewriter Company, delivered this address before the National Standard Parts Association, Cleveland, November, 1927.

Out in Chicago the other day a great corporation provided $20,000,000 for what they called a new bag of tricks. There is nothing under-slung about that. They didn't mean any unethical thing, but they meant to write the old story from a new point of view.

So you are up against the same proposition today—that of reviewing your industry and measuring it and changing every phase of your business in the light of the things we have learned in America since the war. All business today, if it is going to keep in the stream of life, must find a new bag of tricks, it must find a new way of doing business, because we are up against mass production and mass distribution. Every day brings announcements of industries that have come together to fight for the consumer's dollars as they have never fought before. You are, as every other man, bidding for the consumer's dollars, as has never been done before in the history of the world, with a method of advertising and aggressive selling such as the world has never known.

If you are going to keep this great industry in the stream of life, you must also find a new way, you must find a better way; you must find a way, as you come into this great convention, a royal way to make the automobile parts business one of the great industries of America.

What is the super thing? Is there any common denominator of your ambitions and desires? Someone said we only have three things to work with in business—we work with money, with men, and with material. Well I want to speak about something this afternoon, at the gates of the market place, that is really a common denominator of those three things. I want to speak of a word that doesn't begin with "m"; it begins with "p." I want to speak about power. That is what we are all after in business today. We are after power. That is the great objective of the world. Whether we like it or not, the influence of the world and the influence of the individual are measured finally in terms of power. Nations want balance of power, and so do individuals. The salesman prevails finally over his customer, not tyrannically, of course, but actually he prevails over his customer by the exercise of the balance of power. We are all after power. That is what we want in our business and in our lives.

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[1] By permission of the National Standard Parts Association.

Now we have never had but two kinds of power in the world, and that is all you have to work with and that is all I have to work with. We have two kinds of power—horsepower and man-power. We have energy of the atom, and we have the energies of the Adam. Now one of those powers is represented by the power of the horse from the neck back, and the other power is represented by the man from the heart up.

I don't need to tell you this afternoon, in this great strife going on in commerce, that one of those powers has been developed far beyond the other, that you are here merely for the purpose of finding means whereby you can develop the second kind of energy—man-power, Adam power, power of personality—in your great industry. The development of horsepower has outrun the development of man-power.

Your great trouble today, I warrant you, is the same trouble we have in the typewriter business. You can't make the parts of your men as good as the parts of the automobile. That is your great problem. Now you have learned how to standardize the parts of the automobile. They are all right. But you can't standardize your personality, your selling force, your man-power.

You have only to examine an automobile that is broken down by the side of the road. That isn't a very great difficulty, because you have the difficulty analyzed and corrected as soon as you get to the first near-by garage. You will find the mechanic there, without a high school education, who can look under the hood of your automobile and find immediately what is wrong with it and correct the trouble. Why? Because horsepower has been standardized. We know the unfailing reactions of horsepower.

But what about man-power? When our man-power breaks down, we can't go to the garage, we can't get a mechanician. Sometimes it takes a week, sometimes a year, sometimes a decade, to rehabilitate great man-power.

I probably don't need to remind you today that the energy of a single living horse is very much greater than the energy of a single mechanical horsepower, very much greater, but the energy of fifty horses teamed together is not nearly so great as the 50-horsepower motor. Why? Because the mechanical horsepowers are meshed into one another. They cooperate and harmonize. Fifty horses teaming together get in each other's way. You don't get that geometrical ratio of power that you get in mechanical hookups. That is the trouble with great organizations like yours. If you don't come together and cooperate and harmonize, you men get in one another's way.

I understood when I arose this morning that I had nine thousand slaves awaiting to do my bidding and my work; nine thousand slaves developed in the last half century light my way and furnish my transportation and otherwise power my life. Well, I was not surprised when I read the other day that we are about to ask the great scientists of the world if they won't give us a little holiday from the development of horsepower, if the great scientific engineers of the world won't wait a little while, ten years mayhap, in order that the man-power of America may catch up with the horsepower of America. We aren't worthy to live today in the age of the automobile. We are not as fluent, as concordant. We haven't made our adjustment to horsepower that is necessary to make before man-power can come into its own.

Napoleon said after a great battle, "My God, how rare are men. There are supposed to be one million in Italy, yet it has been with great difficulty that I have found two. So I have had to make my generals out of mud." How true that is of every man in this great industry. First of all he is like Napoleon, he is a potter fashioning his forces out of human clay. That is the great work of the industry.

I go back to the original proposition—if you could make the parts of men as good as the parts of the automobile, as unfailing, as regular in their work and their coordination, many of our difficulties would be solved.

I sometimes wonder what the greatest kind of power is. I wonder if selling power is the greatest power in the world. I want to confine myself from now on to that kind of power—selling power. I don't know any power that is super to that power which separates a man from value, I really don't. So I take my hat off this afternoon to the business man and to the salesman; with arm uplifted and palm forward, I give him the old Roman salute. He is really the aristocrat of today, the man who exercises this power, the great power of selling energy and selling power. It is sometimes spoken of as the greatest economic force, but it is something greater than that. When you sell a man something he hasn't bought before, you not only add to his value, but you add to his culture, you add to his refinement, his education.

What is an Australian Bushman? An Australian Bushman is an Australian Bushman because he only has two wants—freedom from pain and freedom from hunger. If you give him freedom from these, he is happy. But the American wants more than that; he wants something beyond freedom from pain. He wants convenience, comfort, pride, speed. His wants are a measure of his education and his culture. Whenever you multiply the number of a man's wants, you add to his culture and refinement.

Mark Anthony said of Brutus: "The elements were so mixed in this man that nature might stand up and say to all the world, 'This is a man.' " I have often wondered if Brutus deserved that great compliment from Mark Anthony. I have often wondered what Mark Anthony had in mind when he said the elements, the parts, were mixed in that man. What were those parts in this great man that made him a wonderful individual? How many of those parts were spare parts? How many were universally indispensable to the great personal attributes that make up the man and the life? I want to speak of some of those parts this afternoon.

I want to speak first of the mind part of personality, and I want to say immediately that the mind, this thing up here we call the brain in the skull, is the spark plug of the personality. It is the habitat of the ignition, the place wherein a man raises an issue and renders a decision.

There is one vital element—and I wonder if Mark Anthony didn't have it in mind, when he said the parts of Brutus, the elements, were so mixed in him. He couldn't overlook the vital spark plug of the personality of the great Brutus. Oh, yes, all the wealth in the world begins in the mind. All your wealth and your selling power starts up here in the skull. That is the beginning of it. That is the most important and vital part of it.

Ninety-five per cent of the constructive thinking of the automobile business has been done in America by five per cent of the men in the industry. Five per cent, I dare say, of the real constructive thinking about the automotive parts business of the nation has been done by the de luxe edition of men who raise an issue and render a decision in their own minds, who are not forever deriving their ideas from other men, but work out their own problems in the light of their own premises.

I saw a man in Boston the other night whom I would catalog immediately as a source-minded man. He is so important within the industry of America that when he speaks the stock market in New York City rises or falls out of respect to that man's prophecy. I never had seen him before. I looked him over at close range. I wanted to see how many things I had in common with him. It was an egotistical enterprise, but an interesting one, and I know you will be surprised when I tell you that I have several things in common with that remarkable man. I noticed first of all that we weigh within half a pound of one another. We had the same pigmentation of face and same convexity. In other words, we were physiological twins. But there was, after all, a wonderful difference between that man and the speaker. That man had made the cash of his personality worth $100,000 a year and mine—well, that is different. That is all I need tell you. I am not going to tell you today how different. I am ashamed to tell you that, but I am going to tell you something more important. I am going to tell you why it is different.

It is different, because that man is a source-minded man. This great mind part of his personality is under control. He raises great issues and renders decisions in his own mind. I am mass-minded and herd-minded, because I belong to the mob—and lean over to drink in and absorb the ideas and opinions of other men. Consequently the mind part of my human machinery is not working like it is in the source-minded man.

You may remember that at one time, somebody asked George W. Perkins if it were possible for any man to earn such a fabulous salary as the United States Steel Corporation paid to Judge Gary, $100,000 a year. This member of the Board of Directors answered this man and said, "Why listen, last week in the assembly room of the Board of Directors of the United States Steel Corporation, Judge Gary caused the Board of Directors to change their minds on one point, and when he did that, he earned all the salary that the Corporation will pay him as long as he lives." One source-minded decision, the raising of one great issue and the working of one great decision, according to the law and according to the facts—there is no telling today what a man can earn with his mind! We have reached the place where it is possible for many men to earn $1,000,000,000 a year.

Who would undertake to state the mind value of a man like Abraham Lincoln, Daniel Webster? Who would undertake to state what George Washington or Benjamin Franklin earned in their lifetime? But the interesting thing was that these men were so busy earning money they never got time to collect it. A lot of men in America today are so busy collecting it, that they don't have time to earn it. There are the two sides.

I say the wealth of your life is in your mind; up here, under the skull, is this important factor of the ignition of the personality, the spark plug of the mind. Oh, how valuable it really is! It is hell to be poor. When I say "poor," I don't mean poor at the bank, although that is a very sad kind of poverty. I believe the day is almost at hand when we won't have so many people who are poor at the bank. Yet some of the greatest personalities in the history of the world have been poor at the bank. Socrates was poor at the bank. Paine, Abraham Lincoln, Jesus of Nazareth—these men were poor at the bank. But those men were not paupers; they were men who were rich in their intellectual resources. That is where you and I are rich—in our minds.

I say the average American is so poor he hasn't two ideas to rub together while he is waiting for a train! That is the poverty of the average brain! You and I and the average American have a great spark plug if we will use it and turn it over and make it do our own thinking and our own work.

You say, "Why should I, when I can inherit somebody else's ideas?" That is true; that is the answer. You don't think, because you inherit other people's ideas.

It transpires that I am a Democrat. I say it transpires. I don't apologize for the fact that I am a Democrat. I don't offer any hope that I will ever vote any other ticket as long as I live. I am not sorry I am a Democrat; I am just sorry I haven't a good reason for being one. That is all. In other words, my democracy was an inheritance, not a conviction.

Very well. The same is true of religion, too, just as true of religion as of politics. I know some Republicans who are no better off than I am in my democracy. They have no more conviction about politics than I have, because they haven't thought it over. They just inherited it, they reached over into the basket and picked it out.

I want to say that the high cost of doing business in the automotive parts industry of America is due to the fact that you can't make people think. I put my finger on the sore spot in your industry. The high cost of doing business in the automotive industry and in every industry in America is due to what I am talking about—you can't make people think about the value of your merchandise.

It is all right to be a Democrat in politics, but I ought to be an aristocrat in my mind, not mass-minded, forever thinking as my neighbor thinks. Rather let me be as one of whom the shepherd spoke when he said, "I have other sheep, not of this fold." If a thousand generations did thus—and—so; let it be like you to do otherwise. There is the motto of the aristocrat. There is the motto of the source-minded man, the open-minded man, the man using his spark plug to great advantage in this industry.

You say, "I know it does apply to my business." I know it does, too. What is a sale anyway? A sale is a record of two minds that have met. That is what a sale is. It is very hard to meet the average mind, because it isn't going anywhere; it is asleep. Before you meet it you have to shake it and arouse it and get it out of its slumber.

Oh yes, I say the progress of the world is due to the capacity of man for changing his mind. Wherever a man fails to think, he fails to understand. Whatever he fails to understand, he opposes. I don't care if it is your merchandise or mine, if you don't think about it, you don't understand. If you don't understand, you oppose, and there comes again the high cost of your industry.

The best remedy I can give you for a clean mind is the remedy I got out of the old book very few of you read. It says this: "Prove all things and hold steadfastly to that which is good." Oh, if we would only do that in the automobile industry, if we would only do that in the industry of the world, if we would only prove all things and hold steadfastly to that which is good. I know nearly everybody can do one of the two things. But remember, there is a compound injunction that you must *prove* and *hold* steadfastly.

I am an orthodox Methodist. By being an orthodox Methodist, I mean I hold steadfastly, but I don't prove anything, I am the same kind of Democrat. I hold steadfastly, but I don't prove anything. What if in the life of the modern day, I sought to keep in the stream of life with religion, politics and business, by proving all things and holding steadfastly only to that which is good! Oh, yes, the mind is a spark plug. It is the spark part of the personality.

There is a second vital and important part which I want to speak of today. I want to speak of language, and language corresponds in the human machine to the transmission in the automobile. Now that is what my language is. It is the highway over which the inanimate becomes animate and the dumb, articulate. Rob a man of his language and you throw him back into the society of his anthropoid ancestors. Language is not a spare part of the man; it is universally indispensable, a non-interchangeable part of his personality.

With every man, language is a unique achievement. My language won't do for you and yours won't suffice for me. Oh, no, we know men by their language. Every man's tongue is a mixture of sentiment, of training, of education, a mystic power, such as haunts a great work of art.

If I could improve the language power of the people in this country today, I could add to the turnover in your industry, if I could improve the vital, important part of the selling organization of your business, which is reflected in language.

We will never have perfect men until we have perfect language in the world, because language is the means of man's impression and expression. That language is so vitally a part of my personality and so much of my language is an aspect of my personality, that if I had to go to the hospital tonight and have a major operation performed to my body or else have someone tamper with my language, I would undergo any operation on any part of my body before I would allow anybody to tamper with my vocabulary.

I would rather give up my appendix than the adjectives and the adverbs I need in my business. I would rather have a weak body than a weak speech. I wouldn't mind having a tin ear if I might have a silver tongue. Find a man in this industry who can grab the language by the butt end and make it crack like a whip, and you have found the man you would like to be. He has language power.

This transmission I say has been powered and motivated and vitalized and added to. What about your word power today? How many words are in your vocabulary? Is there a man here today who can describe an automobile? Is there a man on the payroll of any great automobile concern today who can adequately describe the merchandise he attempts to sell? How many of your transmissions have been lubricated so they can really express the richness and fullness of your minds? In other words, how many words are there in your vocabulary? Shakespeare had 27,000. The average woman hasn't more than 2,000, and that is a mighty small stock, but she has a wonderful turnover.

I don't know anything more tragic than day after day representing a great industry, standing face to face with a great opportunity, and finding yourself the saddest pauper on the face of the world, which is the language pauper. That is the saddest kind of pauper I know, not poverty in the bank, but poverty of speech.

Did you ever think about the power of a word? Let's take a word and see. Let's take the word "war." That is a little, three-letter word, and that is all. T. N. T. is a three-letter word, yet it symbolizes the most destructive force the human mind can picture. War symbolizes all the hell and bloodshed that separates Cain from the Kaiser.

We have other discordant words in our vocabulary that are antagonistic and destructive and destroy our intercourse with our neighbor or our customer. We have other kinds of words. We have words that heal and words that harmonize and syncopate. There are words like love and mother and home and harmony, and if you take those words out of the language, the ultimate hope of democracy would be lost forever.

But we are speaking today about cash value. The other day in Philadelphia, I sat in a great paint convention. They told me they got together a few years ago, wanting to make America paint-conscious. They decided they could get a slogan. They got a great advertising expert, one of these men who play upon the English language as Paderewski on the piano. He brought back the slogan, "Save the Surface and You Save All." There are seven words, that is all. Seven units of power of the English language! And after one-half dozen years, the greatest paint company in the world came to the paint manufacturers and offered them several millions dollars for the exclusive use of that slogan. One million dollars a word for seven simple words of the English language! Why? Those words had power, compelling and impelling; power to make the people of America do what the paint manufacturer wanted them to do.

You say, "Mr. Spillman, I agree with you. I would like to remedy that. What is the remedy for my language? What must I do to make my language fluent, concordant and effective?" I am not a master of language myself; I am just a lover of language. I belong to a small group of men in America who have found out how we could make our lives rich out of our language. If I had known ten years ago what I know today about the value of my transmission, my language power; I would be rich today. There isn't a man within the sound of my voice that can't add to the richness of his life and to the power of earning a living, by adding to his language power.

You say, "What is the remedy?" I don't know what it is in your case, but I know this: I am today the same person I was the hour I was born, plus two great influences in my life—the people I have met and the books I have read. They are the molding influence. What do you read? I am always asking that question. I feel I ought to ask it every time I get on my feet, because if I could only control your reading habits, I could make you over, add to the power of your personality and to the cash value of your life.

You say, "I read the newspapers." So do I a great deal. Why don't you read the trade magazines of your great profession? Why don't you read the splendid circulars put out month after month by this great association? Why don't you men cross over from knowledge into habit with these wonderful ideas and articles circulating week after week in the trade papers of your industry and the literature of your very own organization?

I want to recommend one book in addition to that, that I have often been asked to recommend. I believe it is the one book of all books for vitalizing human speech, and I mention it with some trepidation, because I am sometimes introduced as a minister, and I am not. But I don't know a great speaker in America, I don't know a great advertising man anywhere in the United States, I don't know a great salesman in America, who has a great language power, that didn't get it out of the Bible. I don't care how little inspiration you get out of it or whether you believe it or not. If I thought every word in the Bible is untrue, I would still read it every day, because it is the source of my language power, what little I may possess.

I was asked a while ago to write an article about the greatest salesman in the history of the world, and how my friends are going to be flabbergasted when I write that article. It may be ten years before I finish it. He doesn't live in Cleveland, New York, Chicago or San Francisco. The man I am going to nominate has been dead for nearly two thousand years, and he is none other than the Apostle Paul. He went down to Athens, when Athens had 28 different kinds of religion, and sold them another kind. I don't know any transaction super to that; I really don't.

If I had the time this afternoon I could prove what I am talking about. I am not talking about his merchandise or the territory he had, as vast as that was, but I have in mind the method he employed, the sales power, the method of persuasion that actuated this great salesman in this great persuading.

Notwithstanding that fact, I know some business men in New York City who are so ignorant of the Bible, they think the epistles were the wives of the apostles.

There finally stands old man Noah, the greatest transportation expert of them all and the only man who ever successfully floated his stock while the rest of the world was in liquidation.

I move to my last thought then, and very briefly. Not only is the mind the spark plug of personality, and language the transmission of the personality, but there is another vital part, and that is the part of personality from which we get the seat of power—the heart. For the first time this great source of energy passes from the spark plug, over the tongue and comes down below the neck and finds itself residing in this great pumping station we know as the heart.

I tell you today, there is no power in personality without the heart; there really isn't. It connects the mind and the tongue and gives you that great, final radiation of power we know as personality.

How do we behave in the automotive parts business—that is what I want to know this afternoon. What about the behavior of the machinery of your personality? It isn't enough to know your business. That is important. You came here to learn more about your business, and that is a fine idea. I know only one thing that is super to knowing the automotive parts business, if you are in it. But there is one thing that is a little more than knowing your business, and I want to proclaim that with all the energy I have. I want to say to love it is super to knowing it.

I don't know of a man that has become a marked man in the history in which he didn't invest his heart as well as his mind. I know no exception. Knowledge is not enough and never has been enough and never will be enough. You have to have something else to go along with your knowledge, and the man associated with you must have something else in addition to knowledge. He must have knowledge and love. These are the bride and the bridegroom of good industry—knowledge and love. And this thing we call civilization is the offspring of the mating of knowledge and love.

You can't get along if you have love without knowledge. You can't get along if you have knowledge without love. You have to have both.

You remember in the early days of science in Europe, when they had a great plague, the God-fearing gathered together in great multitudes and prayed to the All Wise to stay the spread of the disease, and by the very fact of their coming together they multiplied the danger they sought to avoid. That was a fine example of love without knowledge.

The war was an example of knowledge without love.

In your industry if you have love without knowledge, you have poverty, bankruptcy and failure. If you have knowledge without love in your industry, you have cutthroat competition, you have strife, you have envy and hate.

You must have the two together—knowledge plus love. That is the great panacea for every kind of industry. That is what makes men young and keeps them happy in their work. That is the thought I want to leave with you today.

I want to know how old you are. That is a personal question. In other words, as I often want to say, every man dies twice. He is born once, but he dies twice. He dies once in the spirit and he dies once in the body, but these departures from life are not always made concurrently. In other words, I mean to tell you this afternoon that the date on the tombstone is not the day the man dies. That is the day society takes formal note of his departure. Some men die twenty years before they are actually interred. They join the increasing army in America which we know as the unburied dead. Isn't it a tragic thing?

Gentlemen, I am not afraid of death after life, but I will tell you what I am afraid of: I am afraid of death in life. I am afraid I will lose my enthusiasm and vitality and contact with my surroundings before I am actually buried. So I am always thinking of the example of Methuselah and speaking of it. Methuselah lived 969 years without being manicured, being X-rayed, or having his appendix removed. We don't know how long he would have lived if he had had all the opportunities we have had. So far as I know Methuselah had only one serious rival—Abie's Irish Rose.

Anything that is vital and drawn to the school of life is wonderful and worth while. Why can't we keep up this wonderfully important contact with industry and with our labor and business?

I went to a great society for the extension of life in New York City, and I said, "Gentlemen, here is my $25.00. I only want to ask you one question. My life insurance agent never lets me forget that some day I shall have an old man on my hands. I came to pay you well to tell me when that hour will arrive in my life. Look me over, examine all the great physiological and psychological lines you find, and tell me the day and hour that I shall cross the deadline and become an old man. The Society said, "We are sorry; we cannot answer that question."

I went to my physician and asked him. I plead with him to answer the question. He is my family physician who has been looking me over for a score of years. He couldn't answer that question properly.

Then I went to the book from which I get my facts of life, my knowledge in psychology and skill in speech, such as I may possess, out of which I get the answer to nearly all great problems that vex me in life. I went to that book, and sure enough, there I got the answer. I want to leave that with you this afternoon, feeling certain if you believe that answer, if you will apply it to your own life, that answer ought to be worth all you spent in coming to this great convention. Where did I get the answer? I got it from Joel, wandering over the hills of Judea, 2,000 years ago. He had no clock, no calendar, no timepiece of any kind, but he answered this question, and this is the way he answered it: He said, "Old men dream dreams; young men see visions."

You know at first I couldn't make it out. Then I said, "Joel, I guess you are right." After all, there is tense to a dream and there is tense to a vision. A dream is a past tense. It is a mind picture made with a still camera, pointed over my shoulder toward the yesterdays of my life. That is the dream, but a vision is a great forward-facing stretch of a moving picture camera, set against the tomorrows of my life. There is a difference between a dream and a vision. There is the difference between youth and old age and there is largely the difference between the quick and the dead. Are you an expecter or retrospecter? Are you of the elixir of life that enabled Apostle Paul to say, "Forgetting the things which I have behind, and pressing forward toward the mark of my high calling?"

I know it is easy to preach this philosophy. It isn't always easy to pick out men who have demonstrated it. But I think it would be unfair to close this afternoon without giving you one man that I think typifies these important elements which Mark Anthony must have had in mind when he spoke of Brutus. Have we ever had a man whose elements were so connected and harmonized that he was worthy of this perfect tribute Anthony paid to Brutus? I think we have had at least one. I don't know how many, but we have had one.

When his grandfather fell from the arrows of the Indians in Kentucky, he left a red cow and a calf, he left a horse, a buck saw and a set of pewter dishes, and that is all. He left all these effects to his elder son, and to his younger son, Thomas, he left nothing. Thomas went over the mountains of Kentucky, building log cabins without windows, building doors without hinges upon them. When yet a young man, he married his cousin, Nancy Hanks, and after two years the son was born, and they called him Abraham.

I say to you this afternoon, if you want the perfect pattern of the genuine aristocrat of our country, there stands Abraham Lincoln of Illinois, great democrat of the plains, but an aristocrat in his mind. He was an aristocrat of the spoken word. He was an aristocrat in that he was always above his environments, his tragedies and his failures. And "the elements were so mixed in him that nature might stand up and say to all the world, 'This is a man.' "

DON'T HATE YOUR CUSTOMERS[1]

PRESTON S. ARKWRIGHT

Mr. Arkwright, President of the Georgia Railway and Power Company, Atlanta, made this talk before the conductors and motormen of the company, Mar. 31, 1921.

I have often wondered what you motormen and conductors think of the work you are doing.

You get up early in the morning, many of you before day, frequently in the cold of the winter—you have done it many days before. You go down to the barn, get out your car, same car you got out yesterday, take it out on your route, over the same old street you ran on yesterday, and the day before that. You turn on and off the current, put on and off the brakes, running along a familiar street that you have run on many a time before, to the end of the line. You pick up the controller handle, walk through the car to the other platform, then run back over the same route to the other end of the line. Then you pick up the controller handle, walk through the car to the other platform and come back again.

The conductor rides with you on the back platform, ringing the bell for you to go, ringing the bell for you to stop, calling out the same old streets when he calls them out at all. And so you go, five, seven, nine and eleven hours every day, day after day, month by month, year on year, in the rain, in the cold, in the sleet, Sundays, holidays, Christmases, finally reaching home again late in the night, some of you in the early hours of the next morning. Oh! the dreary monotony—if you think that way about it.

Even at that it's no more monotonous than most all other jobs.

How would you like to be a bookkeeper, perched on a high stool making figures in books all through the day, day after day and year after year, seeing nothing but figures, engaging in no activities of any kind, simply recording figures of the results of work that other men do?

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[1] By permission of the author. Reprinted from "Addresses," by Preston S. Arkwright.

How would you like to be a mechanic turning threads on bolts, doing nothing else but this, shut up in the shop all day, just turning threads on bolts all the time, day after day?

How would you like to run an elevator, up and down the shaft, seeing nothing of the outside, just up and down the same shut-in shaft all the time? I know a man who does this kind of work and he is the happiest and most cheerful man I know. He runs the elevator in this Company's own office building. He makes it his business to make things brighter for everybody that works in the building. You really ought to go up and take a lesson from him.

As I say, if you think that's what your job is, then that's what it is, and if you let your mind dwell on the monotony of it then you will not only never amount to very much at it, but it will drive you crazy some day.

If you'll take the right view of it you'll find your work altogether different from this. You are furnishing transportation service for a whole City. We people of Atlanta are very proud of our growth from a little cross-road village reduced to ashes in the Civil War to a City of over 200,000 inhabitants. This couldn't have been done without you —you made this growth possible. You've got more right to be proud of this City's growth than any other single enterprise in it. You've taken the greatest part in bringing it to pass.

We are very proud of the Candler Building, for instance, and the other sky-scraper office buildings that mark out the sky-line of the town. The people who built them took especially great pride in them, so much that they gave them their names; Candler Building, Hurt Building, Grant Building, etc. These buildings couldn't exist without the work that you do. You transported the mechanics who put them up, you bring back and forth the tenants that occupy them. So you have had a part in the building of them. Your work entered into it.

We are very proud of our fine churches. Atlanta has an unusual number of fine churches with eloquent preachers and large Sunday congregations. These churches couldn't exist in the numbers they do except for the work that you are doing. There would be no congregations for eloquent preachers to preach to if you didn't bring them in. Why, the very reason you can't go to church yourselves is in order that there may be congregations for churches to hold.

You bring the teachers and the children to the schools. You are helping to educate the children of the community. They couldn't come to the schools except for the work that you do. So that your work, in part, is the education of children.

Mr. Howard recently erected a very fine theater that's an ornament to the City. He is very proud of his theater, as he has a good right to be. The whole City of Atlanta takes pride in pointing to the theater Mr. Howard built. You helped to build this theater. You brought the mechanics to the job, you bring the audiences to see the pictures. There couldn't be any theater without the work that you do. There wouldn't be enough people here to sustain it, and they couldn't get to it except for your work.

You take the workmen to the shops maintaining the equipment that runs on the railroad. You run our cars all night taking the train crews to and from the railroad yards, and you bring the passengers to and from the stations. You have a part in the transportation system of the country.

There are many beautiful residence suburbs around Atlanta. There are thriving, growing, prosperous suburban towns such as Decatur, East Point and College Park. Where would they be but for the work that you do? People couldn't live in the suburbs. They would be huddled in dark, unsanitary, congested tenement houses except for the work that you do.

So all the activities of the community, its entire prosperity and well-being and growth, depend on the basic fundamental service that you are doing. You are not simply turning controller handles and ringing bells. You are making possible the City and all of its activities and you have a share in the accomplishments of everything worth while that anybody does here. This is why you have to get up in the morning before anybody else. This is why you have to stay at work until everybody else has gone to bed. This is why you work on Sundays, holidays and Christmases. There couldn't be any other work in a city of this size but for your work and there wouldn't be any Sundays or any holidays or any Christmases that people could enjoy.

You have got a right to be proud of the work you do. There is no other so necessary, so useful or so valuable.

I don't know why it is, but I think it is true some people look down on street car men. I don't know what the cause is. Maybe it's a hang over from the days when we drove a mule; or because our transactions are in little money; or because we're so poor.

Perhaps we are responsible for it ourselves. I think we have had a low estimate of our work and a poor opinion of ourselves. Nobody is going to think any more of us than we think of ourselves, that's sure. If we think we are common trash, then other people are going to think we are common trash, and common trash we are and will remain. So, above all, have a good opinion of yourselves and a good opinion of the work you are doing. Take a pride in it.

This Company has confidence in you and trusts you. It entrusts to your charge the car, which is pretty valuable, costing from $5,000.00 to $15,000.00. It trusts you with its money. It trusts you with its responsibility for damage. It trusts you with its reputation.

The public has confidence in and trusts you. They trust their own lives and safety to your care. They put their wives and little children in your charge confident not only that you will save their persons from injury, but will protect them from all harm.

You have a position of trust and responsibility and are performing a work of great importance.

Don't go at it just as a temporary or despised job to make a living out of. If you feel you've got to eat to live, that you've got to make a little money to eat and that's why you do this work, you are not going to get any happiness out of it and nobody is going to have any respect for you.

Sometimes we think the public is unfair and unjust to us. At times we are apt to believe it is our enemy. I won't let myself think that and don't you let yourselves think that. It isn't true. It is not our enemy, but whether it is or not, don't think that it is. If you believe that the public is your enemy then you are going to be an enemy to the public and if you feel that way about it, or if I feel that way about it, we are unfit to stay in this business. We are unfit to serve people if we are unfriendly to them.

These people are your customers. You are furnishing transportation for pay. They are paying to ride on your car. *Don't hate your customers*. If you were running a grocery store or a dry-goods store or a clothing store would you hate a person who came in to buy things that you sold? Now you are running a store. You've got charge of the car. You want people to ride with you. You want them to pay to ride with you. You ought to feel friendly with them when they do ride with you. Show your friendliness to them. Be glad to have them get on your car. Have a spirit of welcoming them. If you will show friendliness to them they will show friendliness back to you.

I have never myself been discourteously treated by a motorman or conductor. I have never witnessed discourteous treatment by a motorman or conductor of any other passenger. As a matter of fact, I have very rarely been discourteously treated by anybody. Generally, I think it is our own fault when we are discourteously treated. I know that some motormen and conductors do treat passengers discourteously.

Sometimes I think it is due to the fact that some passenger regards the motorman or conductor as a menial servant. He shows this in his treatment and naturally you resent it. Some times you have got a chip on your shoulder and you take offense when no offense is intended, or you've got a grouch and you take it out on the passenger. Naturally he comes back at you.

Be considerate of passengers. This doesn't mean that you've got to apologize for living or that you must adopt a cringing attitude. It simply means that you are to put yourself in the passenger's place and treat him in the manner you would like to be treated by him. I am not talking about rules of etiquette. Pretense of good will or veneer of manner or slobbering over people is not going to get by. You've got to have the right spirit about it. You've got to like the work and want to do it properly in order to do it right. If you will get the right spirit all forms and rules of politeness will take care of themselves.

You run these cars every day and a lot of the same people ride with you day after day. You know them. Show that you know them. Learn their names, speak to them by their names. There is nothing that flatters people more than to be recognized and called by their names.

You come in contact with a great many people. This Company transported about 95,000,000 passengers last year, or about 260,000 a day. In the early morning you meet the mechanics going out to construction jobs; you carry the people to the mills, and factories and workshops; the clerks and business people and sales people to the offices and stores and business houses; you bring in the school teachers and the children to the schools and colleges, then come the women to shop in stores; you carry people all day on their various missions of business or pleasure or social intercourse. In the afternoons here come your passengers trooping back from the factories, the mills, the buildings, the shops, the schools, the stores and the offices. You bring the husband back to the wife at night and the mother back to the children. You reunite the families at home. You bring them out again to the amusements in the evening. You've got a part in all their various activities. Not only this but your treatment influences their happiness and the character of their work.

If you are grouchy in the morning you pass the grouch on to the men and women who go into the factories, the mills, the shops, the schools, the offices or the stores. You spoil their day. They pass on the grouch they have gotten from you to the people with whom they come in contact. If you pass your grouch on to the returning passengers at night they pass it to the home circle. If you are cheerful and happy you will better the work and lives of all these people you transport and all of the people with whom they come in contact. Nobody made us engage in this work, nobody keeps us in it against our will. If we don't like it let's get out of it. If we stay in it let's be happy about it.

You owe it not only to yourselves and to the Company, but you owe it to all the other men in this business with you to have the right attitude and spirit toward this work and conduct yourselves so as to deserve the respect and goodwill of the public you serve.

Sometimes in an organization this large a dishonest man will creep in. The passengers notice this man knocking down fares. They immediately say that all street railway conductors are damned thieves.

Sometimes the motorman or conductor will be uncouth and rude or even insulting, we'll say to some lady passenger. The passengers who observe it will say that all motormen and conductors are boors.

Whatever one motorman or conductor does reflects on all the other motormen and conductors. So not only get the right attitude yourselves, but interest yourselves in seeing that all the others have the right attitude. Let's raise the public's estimation of the street car man.

If we have respect for ourselves, the proper appreciation of the work we are doing, and the right attitude toward our customers, we will deserve the respect of the public and their cooperation and support. And when it comes to pass that we shall get them—as it surely will—how happy we shall be.

SERVICE IS TO SERVE[1]

ALVAN MACAULEY

Mr. Macauley, President of the Packard Motor Car Company, delivered this speech before a convention of Packard service managers, Detroit, 1926.

Service is to serve. To smile is worth while. The public will serve us just as well as we serve the public. The short-cut to good service is to do what the owner wants done in the way he wants it done. The gravest error in service is failure to fix the car completely at the first try.

Intelligent, well-trained man-power is the secret of a successfully managed service department. Select your men with care. Except in dull times most of the men coming to your employment department are mere floaters looking for an easy job—the last one was too hard. Never keep an almost good man longer than necessary to find a better one to take his place. Make no exception to that rule. It is probably the most important rule in business management.

Be forever on the lookout for better men, and don't hesitate to replace even a good man if a better is available. It hurts to let a man go; it is distasteful and we all shirk it and delay it. But that is a kindness neither to your company nor to the man. He is probably doing work that is uninteresting to him or for which he is not well-fitted. Change his job or let him out. Give him a chance elsewhere to make good. Don't think you can reform a man of bad habits. It's rarely done—and you are not a crusader. The man who will deceive or misrepresent or take advantage of your absence once, will do it again.

There are good men to be had. Do all the work and go to all the effort necessary to get them. The very best way to get them is to take them fresh from school or the farm and break them in. That takes time, but it's worth it.

Perhaps the best way to get good men is to keep in mind the fact that good men usually have as friends and associates other good men and if when you need material you will go to your good men and ask if any of their friends would like a job with you, you can usually get results.

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[1] By permission of the author. Reprinted from the *Packard Inner Circle* of Oct. 16, 1926.

When you get good men, pay them all they are worth. The poorest economy is to underpay good workmen. The well-paid employee is an asset.

Give every man under you the definite hope of advancement both in pay and in position. Give him a future to look forward to and to work for. Many good men in our ranks have graduated from service but—frankly—it has always been a surprise to me that more of them have not attained even greater prominence.

The experience of you men and the men under you is the best possible training for executive positions in the Packard organization. Your men ought to be wonderfully well grounded in the Company's product; far better than workmen in the factory who spend their lives, for the most part, doing a very narrow range of work and having little opportunity to know the Packard car in its entirety.

Why not give us the opportunity to appoint a few vice-presidents out of the service ranks? We are willing—think it over!

In my opinion you do not start ordinarily with good enough material and you do not arrange for fast enough promotion of keen, alert, ambitious youngsters who would willingly serve under you for three or four years, if they knew someone was watching their efforts who would recognize merit and ambition and reward it at the right time.

Most of service work is no white-collar job—you can only attract the best caliber of young men to it if you show them it is the greatest opportunity anywhere to learn the fundamentals of the business and to qualify for better things. Give your young men a chance and get the boss to help you.

Did you ever get your men together and tell them what an important part service is to play in the future of Packard?

Did you ever tell them what service really means and that it cannot be done as it ought to be unless they can put themselves in the position of the owner who needs something done to make his car right?

The conception of perfect service is constantly expanding and must be handled by broad and liberal minded men who put equity and fairness above gain—who put a proper valuation upon a satisfied customer as an asset running into the thousands of dollars, and who love a job thoroughly well done and get a kick out of doing it.

REMARKS AT GENERAL DIRECTORY CONFERENCE [1]

WALTER S. GIFFORD

Mr. Gifford, President of the American Telephone and Telegraph Company, delivered this address at the General Directory Conference of the company, Jan. 20, 1928.

MR. WILSON AND GENTLEMEN: I am very glad indeed of the opportunity to meet you, and I am only sorry that I was unable to get here earlier in your conference. I should like to have been here to welcome you as you started rather than come in when you are nearly finished.

The telephone business is a complicated one, and when I have the privilege of meeting the different people who get together to discuss its different phases, it is particularly brought home to my mind how complicated and how different the several lines of work are.

Each part of it, though, is as essential as the other part. That is to say, it is a good deal like a picture puzzle. If we want to make a picture of the official organization doing its job rightly, every part of that picture must fit properly so as to create a satisfactory whole.

Some three years ago I began to talk a little about service from the customer's standpoint. After all, there is nothing particularly new about that. That is what we have been working on all these years. On the other hand, to me, at least, it was a different way of approaching an old problem. In other words, instead of approaching it solely from the showing of our internal records, which we admitted were pretty good, the real question was whether the people who were using our service thought we were doing a good job.

I believe that new approach to an old problem has been helpful to a good many of us at least. It has given us a new, fresh start in our work, and I know of no place where we have made more progress than we have in the work that you gentlemen are engaged in. I also know of no single part of this picture puzzle, that I referred to, that is more likely to spoil the picture if it isn't well done than the work that you are engaged in. I know that its importance relative to the number of people in the work certainly looms large from the customer's standpoint. I have had comments made to me personally about directories. Some of them favorable, some of them not favorable. There is nothing that we can do and do badly that will more irritate a customer or a subscriber than a poor directory, and there is nothing we do where the law of averages seems to be as useless as it does in directory work.

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[1] By permission of the author.

It doesn't help a man a bit if you tell him that ninety-nine per cent of the names in the directory are right and his is wrong. It doesn't make him feel any happier.

Another thing that has often occurred to me is that an error made in the directory isn't an error that lasts for an hour, as a telephone call frequently does, but it stays there until the next issue of the directory is out. That is not only in connection with errors in the directory, but it is also in connection with the general appearance of the directory, the serviceability of it and the legibility of it. It seems to me that there isn't any part of this major program of improving our service from the standpoint of the user of the service that is more important than the directory.

As I said before, I don't know of any part of the business that we have made any more rapid progress in than we have in connection with the work you have done. On the other hand, I was glancing, very briefly, over a few charts and figures, which Mr. Wilson sent me the other day, and it is quite evident that there is still more progress to be made. I say quite evident, because it is quite evident in some places they are doing better than in other places, and on the face of it, it seems reasonable to expect that everyone can do as well as the best. Perhaps I am enough of an optimist to think the best can be done a little better. So I think there is all the room in the world for further progress which, after all, makes both life interesting and work worth doing.

It is particularly gratifying to know we are not only making these improvements in directory work from the standpoint of service to our customers, but that at the same time we seem to be doing very well on the financial side of the directory work. In other words, improved service is not being obtained at a net cost, but rather at a net profit. That is good, and I think there is still progress that can be made in that direction, based also on the fact that I know there are some companies and some city directories that seem to do better than others.

To digress a minute, I was asked the other day to write a short article on the future of America. I am not going to go into that, but I have been doing some thinking about it and my thoughts turned out to be rather interesting to me. It seems to me that we are building up a civilization in this country based on quite different principles from any that was ever built up before. That is, most civilizations, as I read history, have been built up at the expense of some other civilization, that is, by conquest of one civilization by another. We are engaged in the United States, it seems to me, in building up a new civilization at the expense of no one; that is, it is a conquest of nature by science and organization. If that is so, again the opportunities for conquest are unlimited and we can go on with this program of providing more and more material comforts which, of course, mean more and more leisure and more and more opportunity for the emotional, spiritual things in life.

So I look forward to a continued progress in the United States along that line, progress which instead of exploiting people is going to result in spoils of the victory that can be exploited for the benefit of the people.

What has that got to do with the particular work we are on here? As I thought of it, it seemed to me that the Bell System particularly personified that movement of the conquest of nature by science and organization. It seemed to me that we were one of the leaders in that movement which is going on in the United States and to some extent in other parts of the world.

After all, coming down to cases, that is exactly what this conference is doing, that is what we are all doing, trying to take a given set of circumstances with their limitations and their opportunities and balance the economic costs and the physical limitations of the size of directories and various problems you have, and out of it all develop the cheapest and best and most satisfactory product.

With each part of the Bell System working along the same line, I think that the progress we are going to make in the next few years will make progress that we have made in the past few years—and I think that has been very great—look rather slow. I am looking forward to the group in this room to be at least one of the leading groups in the Bell System in that great work.

ADDRESS TO THE GRADUATING CLASS OF THE NEWARK TECHNICAL SCHOOL[1]

F. W. WILLARD

Mr. Willard, Personnel Director of the Western Electric Company, delivered this address in Newark, N. J., Apr. 22, 1929.

You who tonight are receiving the well-earned evidence of your effort for better education have in most instances chosen the engineering profession. You have selected yourselves. You were not foreordained by your ancestors, but while earning your living in the mechanic arts you elected to give of your spare time to improve your technique in those arts. That puts the stamp of superiority on your characters, because no intellectual weakling will voluntarily indenture himself to four or six or eight years of night study, nor spend his earnings for the facilities to that end. You have the right to be proud of your accomplishment. I congratulate you.

I am informed that some of you are now holding responsible positions in the industries of this community. That is as it should be. It is but the promise of your destiny as engineers. It is as future engineers that I wish to speak to you tonight. I would not belittle the advantages nor the accomplishment of those young men of the community who enjoy the opportunity of attending full time engineering courses. Those of them who make the most of their opportunities, even though they may not have made those opportunities as you have, will be your professional peers in the days to come. In those days some of them will work under your supervision to their profit and yours. Don't underestimate them. Don't high-hat them. Remember that while they seem to have had better initial opportunities, they labor under a disadvantage which you do not have. They must deflate the envelope of an academic halo before they can travel under their own power. In the nature of the circumstances you must have done this already. A few short years in our modern industrial enterprises are effective deflaters as most of *you* know now. Therefore those who in that time prove their capacity come out neck and neck and their intellectual ancestry is effectively obscured by the dust of the race.

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[1] By permission of the author.

Putting aside then this matter of educational origin as inconsequential, let us for a few moments take a look at the engineer as a useful member of society.

Engineers as individuals and as groups are very largely engaged in development of the material betterment of society, by operating through industrial enterprises organized for profit.

These enterprises most closely affecting the life of the common citizen, have largely passed from owner management to paid professional managers, and these paid managers are being increasingly drawn, for obvious reasons, from the Engineering professions.

These enterprises in the United States employ today upwards of thirteen millions of people. These millions, directly or indirectly, through their earnings from employment support about sixty-five millions of our population, and engineers coming as they are into the management of the employing enterprises are wielding a tremendous power over the social and economic well-being of our people.

In this process engineers through the application of their technical skill have raised this large section of the population to a comparatively high level of economic independence through an astounding mechanization of labor. Contrary to current propaganda this mechanization is not stultifying the worker. It is creating insistent demands for new craftsmanship in the creation of the machines and the service thereof. Never was there greater demand than now for the skilled mechanical craftsman. He has been released from the uneconomic repetitive task to new and higher tasks requiring creative skill.

More than this, mechanizing hard and disagreeable labor tasks has dignified the unskilled laborer by making him the boss over a machine. The engineer is raising him out of the slave category.

Most any day one can go out on the streets of Newark and find one or many black-eyed Italians sitting at the controls of a mechanical sewer digger. They seem to get a real kick out of it. Thirty years ago the Italian was down in the sewer with a pick and a shovel, and the kick he got literally came from the boot of the Irish gang boss.

The advent of the engineer into the management of industry has not been sudden nor revolutionary but inevitable and evolutionary. He doesn't claim to be a sociologist nor a reformer. He doesn't preach because he is so busy creating new and useful things and means for people that he has no time to talk about the philosophy of his being. Seldom has he the time to think about it. But because of his works the people just now are beginning to look more to him for leadership than to the older and more venerable professions.

Coming so rapidly into the management of industry he is consciously or unconsciously bringing to industry a practical solution to the age-old conflicts between the management and employee groups. He is wiping out the residues of the old master and slave psychology which were not eradicated by the advent of free labor.

As the result of his practical and scientific approach to the problem of management of men, private industry today either frankly or by implication acknowledges a social consciousness; not because it is forced to do it, but because the engineer-manager has shown it that such a policy pays dividends.

His technical contributions as well as his management contributions have all worked toward more stability of the business, which means more stability of employment, which means more people spending their entire working lives in a single enterprise. They feel correctly that they have some vested interest in the enterprise. It consequently becomes a reality of their existence and on that account its management cannot dodge its social responsibilities.

The President of the United States said in his acceptance of the nomination for that high office that farming is not an industry but a mode of living. Equally true is it that stabilized employment in industry is a mode of life, and to that extent becomes an integral part of the social environment.

Having created the tools for this stabilized industry and being on that account called largely to the management of the men and women who use the tools, the engineer of today necessarily brings his exact and practical training to the solution of those inevitable human problems which arise wherever people work together for a common objective.

The effective engineer cannot tolerate waste whether it be waste of materials or waste of human effort. So he is successfully attacking those causes of human waste which always have their source in conflict between men as individuals and as groups.

More than two decades ago a great engineer, Frederick W. Taylor, attacked the problem by the engineering method. He analyzed down to the elements a large number of labor operations, not for the purpose of squeezing more effort out of workers but for the purpose of finding the best tools, the best and easiest methods, and the limits and effects of physical and monotony fatigue that he might set up new standards of production with the minimum of human effort and the maximum of reward for that effort.

Unfortunately his scientific data were too frequently used by unintelligent managements to do just what he warned against, namely, to try to get more effort for the same or lower wages. That was before the day of the engineer-manager.

It is not surprising that great conflicts arose between workers and managements. It has taken a long time to teach managements that high wages for competent operators of the best kinds of tools by the best kinds of methods are the sure road to the lowest costs and consequently the biggest profits. The engineer has led the way. That's why he now sits in the seats of the mighty.

As indicated in the beginning, the lives of such a large proportion of our people are so completely dependent upon industrial employment, the environment of that employment must needs be reflected in our whole social and political structure. As industrial workers become economically independent by virtue of good tools, good factories, good management and good wages, our social life will be lifted to levels not heretofore dreamed. The key men in this evolution are the engineer and the engineer-manager.

Again I congratulate you; this time because you have elected to fit yourselves to become experts and leaders in a social development not to be commanded by law nor induced by propaganda.

COMMENCEMENT ADDRESS, OHIO STATE UNIVERSITY[1]

CHARLES F. KETTERING

Mr. Kettering, President of the General Motors Research Corporation, and recipient of the Sullivant Medal, conferred by the Ohio State University for distinguished service, delivered this address June 11, 1929, in Columbus, Ohio.

It is indeed a great honor to be asked to come back to the school from which I graduated 25 years ago, and speak at the Commencement. It is quite an emotional experience for an engineer. I am not going to attempt to give you any advice. The chances are that you have had enough of that. And it is a dangerous thing to do, anyhow. Physicians know that in blood transfusion it is absolutely necessary that the index of the blood of the patient and the person supplying the patient be the same; otherwise, no matter how successful the operation may be, the patient will die. In giving advice, we have very much the same problem. If the temperamental index of the person giving the advice isn't like the temperamental index of the person receiving it, no good will come of it. Now I don't know anything about your temperamental index at all, and you know absolutely nothing about mine, so I will not give you any advice.

A few months ago a friend of mine came to me and said he wanted to take a trip to a certain place that I had visited some few years ago. I happened to know two men, both of whom had been there in the last year. I told him to talk to them. I saw him a couple of weeks later, and I said, "Did you talk to those fellows?" He said "Yes, I talked to them. One fellow said it was the most beautiful place he had ever visited, and the other one said it was perfectly terrible." "Well," I said, "you have the advice now, and you can do whatever you want to. Which one of those men are you nearest like, which one appeals to you the most; which one does things more nearly like you?" "Well," he said, "the fellow who liked the place," and I told him in that case to go there.

Be very careful when you ask for advice as to whom you seek it from, or if you do ask for advice, ask it from three or four people, and then use your own judgment from then on.

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[1] By permission of the author.

You are going out from college on a long trip. I have been out on that trip for 25 years, and there are a few things about the road, a few detours, that perhaps I had better tell you about. I haven't got any map or chart to give you, and I don't believe you would follow it anyhow. Nevertheless, there are a few things along the road that we can look out for. In the first place, you are just a single entity. That is how you are counted on the road—no more than that. But I consider every individual who goes out on that road about three or four different things.

He's a physical entity, a very important thing. The question of your health and the method of taking care of it is very important. In other words, regardless of whether you are weak or strong, there is a certain condition in which you can keep that physical machine, and which it is your duty to do. You can make arrangements with some good doctor to go and see him once a year, and pay him so much as long as you don't get sick. If not that, then you can take a life insurance policy, and you will get all that free.

The next thing is that you have an instinctive mentality. That has been the thing that has helped us to get out of the jungle. All of the automatic functions of life are instinctive. They need to be watched quite carefully, however, these days. The world is changing rapidly, and instinct is somewhat against change. The human race has been conscious of itself for about 8000 years. In other words, about 8000 years ago, a feature of the human mind first became apparent, and that was intelligence, and that intelligence was strong enough to enable the human race to make some X marks in caves. Then we began to train and develop an important entity which we are supposed to possess, namely, intelligence.

The difference between intelligence and an education is this—that intelligence will make you a good living. Education won't do very much for you. Encyclopedic knowledge isn't worth much in the world today. They don't pay a very good price for it, because you can buy an encyclopedia for $75 on the installment plan, and you don't even have to read it if you don't want to. But if you use even one fact in an intelligent practical way, that is a very important thing. And that's the difference between intelligence and education.

I said that the world had been conscious of itself for 8000 years. I can tell you one or two stories to illustrate what I mean. We don't want to take ourselves too seriously, because the human race as a whole is very, very young. Last year Roy Chapman Andrews went out in the

Desert of Gobi and found a dinosaur skeleton. It is supposed to have been there eighty million years. That is a very long time. One might say, "Eighty million years is such a long time that you don't know what it means—you can't comprehend any such cycle of time." Well, what's the difference? Professor Shapley in his desert laboratory took some pictures of a nebula from light or light that affected the photographic plates which had left that spiral nebula a hundred million years ago. In other words, the light which affected that photographic plate last summer had left its starting point twenty million years before that dinosaur was born, and if it had had a high speed way of detecting it, a telescope by means of which it could look down, it would have reported that "forty million years ago I, this light wave, saw that dinosaur running around on the Desert of Gobi." But they would have said, "That can't be so—that dinosaur was dead forty million years ago," all of which would have been perfectly true. Now if we take the 8000 years that the human race has been conscious of itself and dissolve it into the hundred million years and turn it over to a chemist to analyze, he will tell you that that is almost pure time, there is just a slight trace of impurity in it. That is civilization. And if we would take the 2000 years of the Christian era and put it in that hundred million years and turn it over to the chemist to analyze, he would tell us that he couldn't find even a trace of it. Yet we are trying today to set stakes of our experiences, and project too far what we can't do. In other words, the distance between our stakes of time that have to do with the great problems in front of us are set so close together that they might as well be in the same hole.

But all of that has nothing to do with our problems, for we still have problems, and still have to solve them. Consequently that is the reason why nobody can tell you what to do. You are going to go out and get your first job, and go to work. But you are not going to like your first boss at all. The best story I know of to illustrate that is this: In our research laboratories we hired a young man who came to us very highly recommended, from a great university, and after he had been there for six months or so, I ran across him one day. I said to him, "How are you getting along?" He answered "Not very well." Then I asked him what the trouble was. "Well," he said, "you can't do anything around this dump." I said, "Why, what is the trouble?" He replied, "I want to ask you a question if I may." I said, "All right, go ahead." And then he said to me, "Where do you get all the dumb heads of departments you have around this place?" I said, "I don't know, we just pick them up here and there."

And so you are going to find that this first boss is not going to be so good. But if you stay with him long enough, he will improve. If you don't want to stay, go and get another one. He will be better. And after about the third one, you can really go to work, because the situation which you will find yourself in will be quite different. There is no way of setting up what it is going to be. That is the reason we can't map out your course now in regard to the job you will fill. I have always told my gang that I don't want any fellow that has a job working for me, but I do want the fellows that jobs have. In other words, I want the job to get the fellow, not the fellow to get the job. And I want that job to get hold of this fellow so hard that no matter where he is, the job has him; the first thing in the morning when he wakes up, there is the job sitting on the foot of the bed, ready to grab him, and the job is right there when he goes to bed at night and passes out of consciousness; that job is there all the time. That is the only kind of a fellow you can rely upon to do a real good piece of work, one that the job has hold of so hard that he can't get away. They are not such bad taskmasters, either, these good jobs, so don't be afraid if one gets you. It isn't going to hurt you.

The next thing you are going to run across is that thing called a hard problem. A few years ago I had a friend who wanted to take a trip to Europe. He said to me, "Is there anything I can do for you while I am over there?" "Yes," I said, "I would like for you to visit some of the great hospitals over there and bring me back a list of incurable diseases"—not that I was particularly interested in diseases at all, but because this fellow wanted to do something, and I told him that was a good thing to do. When he came back, I said, "Well, what did you find out about incurable diseases?" He said, "Well, I know all about them. The only incurable diseases they have in Europe are the ones that the doctors don't know how to cure." So the only hard problem you will ever strike is the one you don't know how to solve. If you knew how to solve it, it wouldn't be a hard problem.

That was illustrated one time for me. A friend in the steel business who always sends me samples of new kinds of steel, sent me a little sample of a very special material. I turned it over, purely by accident, to the foreman in the machine shop, and told him to drill it out and turn it over to the metallurgical department and have it analyzed. Shortly after that I saw him, and I said, "Did you turn that sample over to the metallurgical department?" He said, "They couldn't drill that at all, it is so hard that it is impossible to drill it." I asked him, "Did you try a diamond point drill on it?" He said no, and I told him to try that, and he drilled it. He told me something that wasn't so, he told me that steel was too hard to drill, and that wasn't the case at all. The steel was what it was. It was the drill that was too soft. That was the whole difficulty. Every time a hard job comes along, you will know it is a case of a soft drill. The job is what it is. You can't change the job.

There is a great deal of talk these days about theoretical men and practical men. There is no difference between them. The only thing is that the theoretical man can take liberties in shifting a problem around in order to get a solution, while the practical man can't. But when they do the same thing, we have the same result. There is no difference between theory and practice, but practice makes you take the theory into consideration.

If you will go out and expose yourself to a good job, and if you will not make your boss out too bad a fellow, for a while, you will find out that this is a most interesting trip you are going to take. That is perfectly true whatever your job may be, because you are going out into quite a different situation than we did 25 years ago. The reason is that the world is going through one of the greatest transitions it has ever gone through. It is kicking out part of the effects of instinct and asking intelligence to come in and sit at the board once in a while. That has been shown by the fact that the world is changing more rapidly now than it ever has before. Maybe it is not always in the right direction, but nevertheless it is changing.

And we say in our organization that a research department is purely a department not of science, but simply a department of discontent. A research department in any institution, no matter how highly organized, is for the sole purpose of keeping everybody reasonably dissatisfied with what they have. And that is, after all, the finest thing in the world, because only when you are dissatisfied do you have a keen appreciation of the thing you would like to have. If you are content with what you have and never want anything else, then you are simply a unit, and not an active unit, at that.

Changes today are brought about by a very interesting process. People do not understand why the thing that was good today, in 25 years from now is out of the picture. It is really quite simple. There are born into this world two and a half million people each year, in the United States. The day you were born, everybody in the United States was older than you were. The next year there were two and a half millions of people younger than you, and at around 20 years of age, there were

20 times two and a half million people, or fifty million people younger than you. So that from 20 to 35 years of age you pass through the center of population, as it were. And you bring into this picture an entirely new point of view as compared to the two and a half million who are passing out. Consequently, the opinion of everything has changed, and is changing, and that is all right. You cannot stop things from being different, because of that one fact alone. Values do not exist inherently in things at all.

We realized that last year. In order to prove the necessity of open-mindedness from the standpoint of change, we said, let's take the most perfect automobile that has ever been built up to the present time, and put it here in a glass case where we can all see it, and so it can never be changed in any of its physical characteristics, and let's assume, we will say, that that automobile is worth $2000. Let's get one of these fine lettering experts to write in gold on a plate and say it has been appraised by all of this group as the finest product of its kind up to the present time, and that it is well worth the money, and put that plate inside the case. Now in a year let's come back and look at that same automobile. We will say, "Well, that is not so good," and we will have a debate, and then we will say that we have reached the conclusion that we should take $200 off of its appraised value, and write that on the outside. The next year we will come back and again we will say, "Well, that don't look so good," and we will take $200 more off; and in 10 years from now when we come back to it the only fellow who would bid on it would be the junk man.

Something has changed. What did change? The eye that looked through the case is the only thing that has changed. But what made the eye change? Because certain things have been done in the meantime that have caused that thing to look entirely different.

Consequently, in addition to the important things that you have to do, you must remember this, that there is nothing perfect in life. It's perpetually changing, and most people are all the time trying to stop the changes. The only place on the road of life where there are any park benches where we may sit down and rest and refresh ourselves, is immediately in front of the undertaker's establishment.

So as long as you stay in the procession, you will have to make up your minds to change your mental attitude as time goes on. You have got to live in the world as it exists. There are a lot of people who go through life saying that they don't like to change. It doesn't make any difference whether you do or don't, changes are going to come. You can't stop these evolutions; therefore, you might as well be part of them as against them, because if you are against them, you are the only one that will suffer.

If you go out into the world with that attitude, you will find the world very, very receptive. If you will get three things into your viewpoint correctly, you will never have any trouble. The first is this—that you are going to be a servant to somebody or some thing. It doesn't make any difference what it is. You have got to be a servant to somebody or some one thing. It doesn't matter what it is, so long as it is good.

The next thing is this: To be a good servant implies two things—a willingness to work and a willingness to learn, because none of us knows very much anyhow, and you must learn constantly of the specific thing you have to do.

And when you pack your bag for this very eventful journey—I have been over it now for 25 years—and I would trade everything I have for your chance to change, for the experience ahead of you. I would trade if I could, if you could find some way for me to do so, because I would like to go over the road again. It's a nicer road, and you have a more wonderful opportunity. And I say to you that when you pack your bag and start on your journey, if you will pack egotism and selfishness and all of that sort of thing down in the bottom of the bag, and if you will lay your service uniform on the top, the passports will not have to be opened, and they will pass you through the lines.

III

GOODWILL SPEECHES

AVIATION AND THE AMERICAS[1]

HARRY F. GUGGENHEIM

Mr. Guggenheim, now ambassador to Cuba, is President of the Daniel Guggenheim Fund for the Promotion of Aeronautics. He delivered this address before the Institute of Politics, Williamstown, Mass., Aug. 5, 1929.

In the year 1763 a Frenchman, Cugnot, invented a steam carriage which 7 years later overturned in a demonstration in the streets of Paris and was condemned as dangerous. Forty-four years later George Stephenson succeeded in building a locomotive engine which dragged a load of 30 tons up a slight gradient at a speed of about 4 miles an hour. Over a period of 12 months this engine was operated in competition with horses and, on the basis of strict accounts, it was proved that the locomotive and horses worked at the same cost.

It is interesting to compare these beginnings with the pioneering efforts in another form of transportation. In 1903 the first mancarrying powered flight in the air was made. In a space of time of less than 26 years since then, air transport has already attained an astounding success. It is today an established method of travel in every great country.

As a transportation system, the airplane starts with a distinct advantage in speed. It has already carried man at the stupendous rate of over 300 miles per hour, and it can now cruise with 20 passengers at a speed of 120 miles per hour. In safety, the airplane, *operated under the right conditions,* offers no greater hazards than railroad or steamer; in the whole short history, up to June last, of the American regular passenger services with multi-engine planes, covering a total mileage of 2,200,000, carrying 44,650 passengers, there was only a single accident resulting in death, and this accident was caused by the pilot of another plane "stunting" into the passenger plane.

In the matter of cost, the airplane will eventually have an advantage over other forms of rapid transportation because the development and maintenance of an airway is but an insignificant sum in comparison with the construction and maintenance of roads and railways. In the last of the four factors affecting the serviceability of a transportation system—comfort—today some of the delights from the natural advantages of air travel are marred by noise, but I believe that it is only a question of a short time before this will be practically eliminated.

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[1] By permission of the author.

Thus, the development of the airplane has given us a means of transportation economically practical and reducing traveling time enormously. Throughout the ages improved transportation has been the harbinger of economic progress without which man's opportunity for true progress could not exist. In a world now bound together by and dependent upon communication systems it is obvious that flying will exert a powerful influence on mankind. I think this will be nowhere so strongly and speedily felt as between the Americas.

In considering the economic and political effects of aviation on the Americas and countries in the Caribbean, I should like to quote from a statement that I made two years ago as a member of the Committee of Civil Aviation Experts of the Preparatory Commission of the League of Nations Disarmament Conference:

> Civil aviation is not only a new source of wealth for those countries of great economic resources, but a necessity for all those countries that have either few resources or great but undeveloped resources. Civil aviation has tremendous opportunities in those countries where there is inadequate competitive business. For example, probably the first commercial air transport company to operate without a financial loss was the company operating on the Magdelena River, where the only competing means of transportation is a steamship service that takes 10 days to cover the route against 8 hours by seaplane.
>
> Great cities of the past were built around splendid harbors. Airports in a measure will minimize the disadvantages that cities have suffered in the past because of the lack of the great harbors. Most of our modern commercial developments come to us with the mixed blessing of economic advantages gained by expenditure of large capital investments. Civil aviation, it would seem, has not this mixed blessing. The capital investment necessary is comparatively small. One might predict that the countries with great economic resources will blaze the trail and, after the road is a little easier to travel, those countries without such resources will follow.
>
> The evolution of civil aviation development warrants this prediction. While the war brought the airplane to the attention of the public, the peaceful pursuits of the present and future are the basis upon which the progress of aviation must be and is being founded.
>
> The economic interdependence of countries geographically remote from each other is being accentuated daily. The airplane is unchecked by nature's boundaries of rives, sea, desert and mountain, which were of such importance to generations of the past that our countries' borders have been largely defined as a result of physical conditions. With the free development of the airplane, these physical conditions can be overcome in a new and better way and we shall have a new impetus to international trade. . . . .

I quote this because, although the statement was written without thought of its application to any particular countries, it seems to fit the Americas so snugly.

These countries preeminently lend themselves to the development of air transportation. Their economic interdependence is great. The exports of the United States to the "Latin America Group" in 1928 amounted to $877,900,000, and the imports $1,030,100,000. The exports to Latin North America and South America were 17.1 per cent and the imports 25.2 per cent, respectively, of the total to all countries. At the same time, Latin America imports more than one-third of its total imports from the United States and exports more than one-third of its total exports to the United States.

The southern countries have for the most part great, but undeveloped, resources awaiting the industry of man. They do not have a highly organized surface transportation system to compete with the airplane. The situation is most exaggerated in Central America where there are few highways and not more than two countries are connected by any railways. Many of the countries in the Americas suffer from a lack of adequate harbors—a handicap which can be partially mitigated by the airport. Voltaire satirized the inaccessibility of South America under the old methods of transport in *Candide* where the wise man of El Dorado says:

> But the inaccessible rocks and precipices, with which our country is surrounded on all sides, has hitherto secured us from the rapacious fury of the people of Europe, who have an unaccountable fondness for the pebbles and dirt of our land, for the sake of which they would murder us all to the very last man.

In addition, there are some special considerations favorable to air transportation between the Americas. In Europe the greatest hindrance to regular flying operations over the established air routes is the unfavorable weather conditions and especially fog. Those countries washed by the North Atlantic, where more bad weather seems to be encountered than in any other part of the civilized world, are the worst sufferers. The southern part of North America and the countries to the south are comparatively free from bad weather and especially from fog.

However, the one outstanding advantage of inter-American air transport lies in the fact that no great body of water severs the different countries. In the present status of flying development, the maximum most economic non-stop flying distance is between 300 and 400 miles. Flying in heavier-than-air craft across the Pacific or Atlantic is, for the moment at least, economically unsound. The load of fuel required at present for such long-distance flights precludes the possibility of carrying sufficient pay load to warrant the venture.

In the future, with improved airplane efficiency or with the development of refueling bases at sea, flights over great oceans will undoubtedly become profitable. However, the voyage over continuous land will always have the advantage, because, in addition to its operating superiority, it offers what in railroad parlance is termed the "way to way" business which is the very backbone of profitable transportation.

Within the past year we have built a foundation for inter-American air transportation that augurs well for the future. Pan-American Airways already have put into operation 7,500 miles of airways and they, and other companies, are planning very great extensions to this mileage. Pan-American Airways report that they have in regular operation at the present time a fleet of 32 multi-engine planes and that additional equipment on order will increase this number to 63 by the autumn. They also report that in the first 6 months of this year they have carried 6,000 passengers over 3,500 miles of completed passenger airways and nearly 200 tons of mail over the entire system.

The map shows the present airways and those projected for the near future, connecting the Americas and countries in the Caribbean. Over the routes now in operation, from 1 to 21 days are saved over the best previous travel time, and this present saving of time is but an indication of what the future holds forth.

In order to illustrate some of these possibilities, on the map I have shown lines connecting the capital of the United States with the capitals of several of the countries to the south. On these lines is indicated the air mile distance between the capitals and also the time in hours that it takes to travel today between these points by means of existing surface transportation.

There are three different assumptions that are interesting to make in considering the time to be saved between these countries: first, for the present; second, for the near future; and third, for the more distant future.

In the first place, let us consider an air service flying 10 hours of daylight during every 24, spending the night at hotels enroute and cruising at 100 per hour. This is a conservative estimate of the present-day accomplishment of air service.

In the second place, assume day and night flying for 24 hours daily, cruising at 100 per hour. Night flying of the air mail has been a successful accomplishment in the United States since 1924, and night flying for passenger service will be inaugurated this year.

In the third place, assume day and night flying for 24 hours daily, cruising at 200 miles per hour. The cruising speed of some commercial planes has already reached 150 miles per hour. There is little sensation of speed while flying.

The following table shows the time needed under the different assumptions. In addition, there is shown the average length of time taken today by the existing means of surface transportation. This table is merely suggestive and does not take into consideration actual routes that probably will be flown, which in some cases may increase distance. However, to offset this, the cruising speeds are very conservative for each hypothesis. Also, in estimating time of present surface transportation, nothing is added for time lost on account of infrequency of service. In some cases this causes a loss of many days:

Washington D. C., to	Time, surface transportation, hours	Distance, great circle course, miles	Time by air, assuming 10 hours' flying per day, average speed, 100 miles per hour	Time by air, assuming continuous flight, at average speed, 100 miles per hour	Time by air, assuming continuous flight, at average speed, 200 miles per hour
Mexico City . . .	94	1,920	33.2	19.2	9.6
Tegucigalpa . . .	303	1,840	32.4	18.4	9.2
Managua	558	1,950	33.5	19.5	9.8
Panama City . .	153	2,075	48.8	20.8	10.4
Havana	42	1,140	25.4	11.4	5.7
Port au Prince.	114	1,425	28.3	14.3	7.2
Bogota	216	2,375	51.8	23.8	11.9
Caracas	197	2,065	48.7	20.7	10.4
Rio de Janerio.	318	4,775	103.8	47.8	23.9
Montevideo . . .	414	5,250	122.5	52.5	26.3
Buenos Aires . .	426	5,200	122.0	52.0	26.0
Santiago, Chile.	507	5,020	120.2	50.2	25.1
Lima	288	3,550	77.5	35.5	17.8

The distances in the table are based upon the great circle course. The table indicates that in the case of the capital closest to Washington, which is Havana, the present time by rail and ship from Key West is 42 hours and by air transport under assumption 1, 25.4 hours; under 2, 11.4 hours and under 3, 5.7 hours. In the case of Buenos Aires, the capital farthest by ship route from Washington, the present time is 426 hours and under assumption 1, 122 hours; under 2, 52 hours; and under 3, 26 hours. In the case of Santiago, Chile, which takes longer to reach by ship today than any of the other capitals, the present time is 507 hours, and under assumption 1 is 120 hours; under 2, 50 hours; and under 3, 25 hours. The greatest percentage of saving can be made between Washington and Managua. A journey which now takes about 23 days can be accomplished under assumption 1 in less than a day and a half.

Since the beginning of the age of steam until today, there has been a gradual increase in speed of transportation. Probably the approximate economic maximum has been very nearly reached in the old methods of travel. With the advent of the airplane, a revolutionary change has taken place. The journey that formerly took days now is made in hours. We can catch only a glimpse of the social and economic benefits that this revolution in transport will effect.

The direct and obvious economic benefits which the airplane brings to the Americas are found in the transport of mail, express, light and precious freight, in expediting bank transfers and, most important of all, in carrying passengers. However, in addition to these obvious benefits, the airplane makes possible new developments, the extent of which is beyond computation.

New trade routes will be found with the concomitant making of new commercial centers and the possible development of new businesses. The airplane flying from Washington to Buenos Aires in the length of time that it takes the earth to turn once upon its axis will pass through temperature changes only made possible in a period of six months by the earth in its path around the sun.

Merchants now take advantage of the difference in seasons by sending from South America, with the aid of refrigerator rooms in ships, fruits ripened in their summer for consumption in our winter. The speed with which the airplane reaches its destination and the altitude at which it can fly not only largely eliminates the danger of decomposition but, in addition, offers an efficient means for ventilation of perishable cargo. The airplane bringing fresh uncanned products from one section of our continent to another will be an accomplished fact in the not distant future.

More important than the economic relations of the Americas are our social relations. If you believe with me in President Hoover's dictum in his address at Lima, Peru, on his recent visit to South America: "It is a benevolent paradox that to destroy the distance between peoples is to construct friendship between them," then, indeed, the airplane will be twice blessed. For it will create a tourist business between the Americas of incalculable economic and social benefit.

Dr. Julius Klein, Assistant Secretary of Commerce, recently stated that North Americans made more than 16,000,000 trips into foreign lands last year. Of these but 122,486 departed from *seaports* for West Indies, Mexico, Central America and the north coast of South America. Only about 2,508 visited South America, except the north coast, or the most distant lands. In contrast to this, about 6,000,000 North American tourists visited Mexico by crossing the border. Secretary of Commerce Lamont recently stated that North American tourists spent $782,000,000 abroad last year. This sum represents an important factor in adjusting the trade balances between many nations with the United States. And in Latin America, possessing places of unparalleled natural beauty and a picturesque and cultured civilization, this revenue from tourists may play a similarly vital part in the national economy.

The contacts based on the old methods of transportation are indicative of those possible with the perfection of inter-American air transport. That spirit of adventure to set out for new lands and that urge to seek better conditions are bred in the blood of the citizens of all the Americas. The airways between our countries will have many pilgrims.

Fifteen centuries ago the great Roman roads, traversing Italy and its far flung provinces and only terminated by the frontiers of empire, were the principal instrument making possible an unprecedented economic development and the military dictatorship of Rome. In this century, the illimitable air roads, which at last are available to man, offer the most potent instrument for the economic development not of any particular empire but of the entire world. And more—they offer the opportunity for intimate contact and better understanding that points the way to a world empire not based on the ephemeral military supremacy of a Rome but through the real civilization of mankind.

ADDRESS BEFORE THE BOND CLUB[1]

WALTER S. GIFFORD

This address, by Walter S. Gifford, President of the American Telephone and Telegraph Company, was delivered before the Bond Club, New York, Jan. 14, 1927. Included with the speech is the speech of introduction by the chairman.

THE CHAIRMAN: HONORED GUESTS AND MEMBERS OF OUR CLUB: The head of the American Telephone and Telegraph Company is one who has accustomed us to an annual, or at least a biennial, surprise. It was just about two years ago that we opened our morning papers and saw that the biggest news story of the day was the election of Walter Gifford to the presidency of the largest public utility company in the world. Again last week we saw in our papers a picture of him in the act of using his telephone to talk to London. Now, the thing that startled us was, not to see his picture, but, rather, to see the vision of a prominent American in the act of talking *to* London and not *at* London.

To go back to the earlier story, we were all intensely interested and gratified to learn that he was the youngest man ever to receive such large corporate responsibilities. But, then, he was a director of the First National Bank, further proof of his business acumen. In this community of ascending stars on Wall and Broad, and on Broadway, on William and Cedar, Pine and Nassau, and Exchange Place, one would hesitate to draw comparisons between the so-called younger generation. I know who they are, because they let me lunch with them on these occasions. But to say that our guest has shown himself a master of the art of large accomplishment is to express but modestly our appreciation of his abilities.

Gentlemen, I would not commit the offense of attempting an introduction of one so well known, but I do want to say that the Bond Club is very appreciative of his generosity in consenting to come here, and that I consider it a great honor to present Mr. Walter S. Gifford to the Bond Club of New York.

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[1] By permission of the author.

Mr. Gifford: Mr. President, Members of the Bond Club, and Guests: This morning I asked for a report on some of the places called on the telephone by people in New York yesterday—some of the places at a distance. I have a list of a few of them. There were many thousands, of course.

Somebody in New York yesterday called somebody in Anamosa, Iowa; Atlanta, Ga.; Bemidji, Minn.; Camaguey, Cuba; Casper, Wyo.; Denver, Colo.; Eugene, Ore.; Havana, Cuba; Kansas City; London, England; Los Angeles; Memphis; Mexia, Tex.; New Orleans; Omaha; Portland, Ore.; St. Louis; San Francisco; Seattle; Vancouver; Winnipeg; Yazoo City, Miss., and so on.

So, from Los Angeles to London, from Spokane to Cuba, people were brought in touch yesterday with other people in New York, by telephone. In other words, New York was made by some method a neighbor not only of the rest of this country, but of England. I thought that perhaps I could be bold enough to tell you a little about what makes it possible for New York to be a neighbor of the entire United States and of Canada, Cuba, and England.

In the first place, as it is a nation-wide service that must be rendered, the organization must be in keeping with a nation-wide function. It must be possible for the organization to carry on under state laws, federal laws, and under state regulation and federal regulation. First, we have in the Bell Telephone System, the American Telephone and Telegraph Company—which is commonly referred to as the parent company of the system—and that company owns the associated Bell telephone companies, of which the New York Telephone Company is one, the Bell Telephone Company of Pennsylvania another, and so on. That is, it owns in most cases all of the voting stock, in a few cases the majority, and in a relatively small number of cases a minority of the stock of these associated Bell companies, which with their connections cover the whole United States. It also owns directly, builds, constructs, maintains, and operates long distance lines interconnecting the territories of these operating companies. It is obviously necessary that, if you are to talk across or through several of these territories, there must be some one operating organization that is coordinating the work of getting your call through successfully.

Furthermore, in the telephone business, the apparatus used is extremely intricate and delicate; and if the man at one end of the line is to understand the man at the other end, there must be standardization of equipment, and there must be a high degree of perfection in its manufacture. So the American Telephone Company also owns practically all of the stock of the Western Electric Company, which manufactures telephone equipment. So much for a skeleton of the corporate structure of the business.

In addition to that corporate structure, we maintain at headquarters of the American Telephone and Telegraph Company, a general staff, as we call it—a staff which, including the people in the Bell Telephone Laboratories, amounts to about five thousand people. It is interesting to realize that practically the sole job of those people is to improve, perfect, and make more economical the telephone service of the country. They are an advisory staff engaged on research, development, improved operating methods, improved accounting methods, and all the various things that go into the running of the telephone business. I think that is a very interesting and important factor in its bearing on the continual progress that the telephone business has been able to make in this country. In other words, a large part of that progress—not all of it, it is true—can be ascribed to the type of organization we have set up to carry on this business. I expect we spend in all, on what we call "research and development," something in the neighborhood of ten million dollars a year. It seems like a lot of money. There are literally thousands of jobs being carried on all the time. A few appeal to the public imagination, but most of them are not spectacular. I will mention one of the type that I mean. I think it was only about seven or eight years ago when we were using in our long distance plant, for purposes of long distance telephony, vacuum tubes. We still use vacuum tubes, and they are an important element, but at that time our vacuum tubes were 15-watt tubes. They had a life of 1,000 hours each. By constant research and development, we now use 3-watt tubes, using, therefore, much less power, with a life of 25,000 hours each. The annual saving in the telephone business from that one development is over $1,750,000—just short of $2,000,000 a year.

That sort of development goes on in connection with switchboard cords, and all the various things that enter into the machinery and the mechanics of the business. On the other hand, sometimes we get more spectacular developments out of this research work. For instance, as you all know, we have recently succeeded in opening a commercial telephone service between New York and London. That, after all, is a direct result of scientific research. And as you know, we are now sending to some eight interconnected cities pictures by wire. I believe some of the bond houses are now sending bond circulars by that system. Within the last year, as a by-product of our study on the advancement of the telephone art, there has been successfully inaugurated what is known popularly as "talking moving pictures." We, also, in the last year have made still further improvements on submarine telegraph cables, resulting as a by-product of our study and developments in the telephone business. So this large organization which the American Telephone and Telegraph Company maintains, it seems to me, is bound to result in continual progress and further development in the art of communication in this country.

Briefly, to sum up, we have the American company, which largely owns these operating companies, which are localized in different parts of the country and care for the telephone business in those sections of the country, and by that ownership secures unified operation, which is necessary to the business. It owns and operates the lines which interconnect the operating companies and enable us to get long distance service back and forth, and it owns the Western Electric Company, which manufactures the equipment, and, finally, it maintains this large research staff at headquarters.

I hesitated a little bit to say anything about size, to give statistics. I used to be a statistician, and I find that people are almost afraid to come and hear me speak for fear I am going to give a lot of statistics. Yet I am going to give a few in regard to the size of this enterprise, not because I think mere size is a criterion of worth. I don't think it is, and I don't think it is a criterion of quality or of excellence—but I think it is interesting.

We have in this telephone system in this country over 17,000,000 telephones, so interconnected that for practical purposes any one of them can, at any time of day or night, be connected with any other one anywhere in the country. The plant and equipment and investment necessary to provide for that system and its interconnection stands on our books at a cost of over $3,000,000,000. To operate it—including those working in the manufacturing company—the Western Electric Company takes over 350,000 employees. The telephone business grows faster than general business seems to increase year in and year out; and it has grown considerably faster, and still does, than the population of the country. The result is that we must constantly expand these facilities which we have. Our program, for instance, for construction of plant, including reconstruction of wornout plant, is in the neighborhood of $375,000,000 a year.

The business, however, is very widely owned, as I think all of you know. There are roughly 400,000—more specifically, I think, 399,121—stockholders of the American Telephone and Telegraph Company, scattered throughout the country, the length and breadth of the land.

To me, there is another interesting fact about the telephone business that you may or may not have thought of, and that is, that it is really a retail business, and very much of a retail business. It is done in small units. We handle between fifty and sixty million transactions every day—in other words, fifty or sixty million conversations a day, and each one of those conversations is an individual transaction. That is to say, it is not done by quantity production or wholesale methods, but each has to be handled by itself—each individual request for a telephone connection. Therefore, as would naturally follow from that, we do business on a surprisingly narrow margin of profit. Treating, as we do in our minds in the telephone company, not only our interest but also our dividend payments as fixed charges, our margin of profit over and above that is something less than a cent a day a telephone. I am not saying that to complain about it; I simply mean that because we are dealing in such large units it is interesting to realize that the difference between a successful, prosperous, forward-looking institution and one running in red ink, is the difference of a cent a day a telephone.

Our financial structure, and you all probably know it, is broadly this, speaking very roughly: About a third of this $3,000,000,000 has been obtained through surplus and reserves,—money obtained from the business. This business has run well over forty years and it has never paid out in dividend in any year all that it earned. Moreover, it has provided, as it should, ample reserves against depreciation and obsolescence of its plant. The surplus and reserves have been reinvested in the business. Another third of the money for the business has come from the sale of bonds, debentures, and notes—in other words, borrowed money. The remainder, the other third, has come from our stockholders—from capital stock which is issued from time to time. With the growth of the business to which I have referred, and with the large amounts of money needed annually—new money needed from investors approximates something over $200,000,000 a year—it is quite obvious that it is not only as telephone users that the members of the Bond Club are interested in the telephone business. It seems that our mutual interest will certainly continue. There is no sign, so far as our present estimates are concerned, of any letting up in the opportunity, as I like to put it, that will be provided for people who have funds to invest, to invest them in the telephone business. A part of those funds will, as in the past, come from borrowed money in the shape of bonds or notes or debentures; a part of them will come, as in the past, from the sale of stock to stockholders; and a part of them will come, as in the past, from reserves and undivided profits.

In closing, I would like to mention this somewhat unique thing about the telephone company: I think we are very fortunate, those of us who are in it, in being in this particular business. There is something very romantic about communications. That has been true in all history. If we will recall what we used to read about the marathon runner and the Pony Express, we will realize that there has always been the spirit of progress in such work, the spirit of getting the message through at all costs. So those of us in this system, some 350,000 odd, have really inherited that spirit of service. This sentiment in our business is a literal fact. They have really inherited that spirit of service, that spirit of willingness to sacrifice almost anything to get the message through. That spirit of progress which has become a tradition in our business is very helpful. It is in part responsible for such extensions of telephone service as we have recently seen, in the inauguration of talking to London. It is very helpful in the constant efforts made to give better telephone service.

We are not satisfied with telephone service yet. I don't think we ever shall be. We aim to make it possible for anybody, any time, anywhere, to pick up a telephone and be quickly connected with anybody else, anywhere else, and talk as easily as though they were talking face to face, and at a reasonable cost. That is the ideal that we try to measure our results by from year to year. It is going to take a lot of money from the investing public for us to accomplish it, and it is going to take a lot of sympathetic understanding between you gentlemen and ourselves to accomplish it. What we want to do, if it isn't already a fact, is to make the American Telephone and Telegraph Company and the Bell Telephone System and its associated companies, an outstanding American achievement, an achievement that we can refer to as a typical American institution, which has grown up under American laws and American traditions, successfully working under state regulation and federal regulation, state laws and federal laws.

I don't know that we can predict that each year we shall give you a sensation, as your president said, but I hope and believe that each year we shall better merit your confidence, support, and good will.

I appreciate very much the opportunity of coming here today. I thank you.

TRANSPORTATION AND PROSPERITY[1]

SAMUEL M. VAUCLAIN

Mr. Vauclain, Chairman of the Board, Baldwin Locomotive Works, delivered this address before the Birmingham Chamber of Commerce, Birmingham, Ala., Apr. 16, 1923.

It is a distinguished honor to be able to address you today. I have listened to all that your Governor has had to say, and I indorse every word which he has spoken to you.

This is one great united country, and the flower of the land is in the South. (Applause.) When I listened to the band playing the music of the day, I remembered only too well the song I used to sing—"The Bonny Blue Flag that Bore the Single Star." (Applause.) But those days have gone, gentlemen. The rights and wrongs, whatever they were, have been settled by our ancestors.

When I was in New Orleans last week, the Confederate veterans were there in force, once more to meet together and to honor the principles for which they fought. I felt like embracing every one of those old men whom I saw (applause), because in their intensity, in their desire to establish what they had stood for, they represented the pep that is in the American of today. Everybody welcomes them. There is no resentment whatsoever. Those men are just as welcome in the North as the Northern veteran is welcome in the South.

But those things which have been settled are in the past; now we have before us a problem, a great problem, and that is how we may insure the supremacy of the United States over any country in this world. Today the United States of America is the work-shop of the world. It is only by the unselfish co-operation of the business men of these great United States that we can continue, perpetuate, extend, and develop a supremacy that centuries may never deprive us of. But our golden opportunity is at hand.

We left Philadelphia some twelve days ago. And what for? Because we felt the psychological moment had arrived for two things to be done.

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[1] By permission of the author.

First, to renew acquaintance with our old friends in the Southland, and to find new friends to fall in love with. The whole world is built upon love. If it was not for the love of the young, and their unity and their progressiveness, this country would cease to be and, therefore, business men should seek out the younger life, hunt out the younger men who are less fortunate than they are, and encourage them to progress and point out the way to them, that they may rise to supremacy not only in their own land, but throughout every country in the world.

Second, we are facing a great crisis. What is the crisis? A business crisis. Let us consider the foreign countries, for instance. Since the war I have visited almost every country with which it is possible to do business, in an endeavor to establish what in my judgment during the war seemed inevitable—that we must be the nation of the world. England today is fast losing its supremacy. England has no such advantages as you people enjoy here in the South, none whatsoever. She is under a disadvantage, because she relies upon the oppression of labor for its enforced low compensation, and for the servility she can demand from it, to enable her to quote lower prices than can be quoted by the American. But fast, fast and faster the trade of England is leaving her. One million four hundred thousand men are idle in England today that should be occupied, and seven hundred thousand more are on the verge of striking. And what for? For the privilege of living, of existing, of enjoying the life that God has given them in this great world at least upon an equality such as our common labor in this country enjoys. (Applause.)

Go into France. What is France doing? France is bending every energy to the uplift of her people. She is bending every energy to the re-establishment of her broken-down industries, industries devastated by the Germans in the late war, ravaged, outraged in every manner describable. She is spending every franc that she can scrape together, borrow or steal to put her transportation facilities upon such basis that her industries can be revived, and her people restored to contentment and prosperity.

Go down through Poland. You should have been with me the first time I went through Poland after the war. With everything burned over, the devastation of the South during the Civil War was no comparison to the devastation of that country. Thrice overridden, backwards and forwards, railroad tracks torn up, rails twisted, equipment destroyed, locomotives disabled and abandoned, Poland presented a sad spectacle. I said, "Gentlemen, your only hope, now that you have your independence, now that you have this great, glorious thing which we call liberty, is to put your transportation systems in order, and build yourselves up." And how they have worked upon that! And, thank God, I, as one American, rose to the situation and said, "We will lend you locomotives." (Applause.) And we loaned that country 150 locomotives to start the wheels of progress, depending entirely upon the honor of a liberty-loving people to pay us back; and gentlemen, they will pay us every dollar. Don't you worry about us. (Applause.)

Down through Poland, down through Galicia, across through Czernowitz, down through Roumania, all the same way. But, believe me, in all that terror-ridden district every human being that I met had a smile of hope upon his face. Why did he smile? Because he had something; he had his country, he had his liberty. He was free from oppression, and he was ready to begin again. Well do I remember a wealthy lady whom I met while crossing the North Sea in the early part of the war. When on my way to Russia to see what help I could give them in the way of arms, ammunition, and locomotives, during a terrific storm on the North Sea, when all hope had fled, she threw herself upon the floor in despair, thinking she was gone; and we got the old stewardess, and we picked her up, she by the head and I by the feet, and put her to bed. And, inasmuch as I am a doctor of science, she thought I was a real doctor. I gave her some pellets that I had to put her to sleep, and she slept until the storm was over. And when it was all over, I said, "Now, my dear lady, if I ever come to Warsaw, I'll come to see you." So after the war when I happened to be in Warsaw, I hunted up this lady, and she threw her arms around my neck—my wife wasn't there (laughter)—and the little daughter that she had with her was grown to womanhood, and I said, "How is it?" She said, "It is all gone. My husband's factories are destroyed, our buildings were burned, our property is worthless. But," she said, "we have our country, and we can begin again."

Oh, gentlemen, think of it. We have everything. We have a country, we have a people, we have wealth, we have everything to do business with, and therefore no one should be discouraged. Everyone should be full of hope, as was this poor woman who had lost everything but her country, and smiled and said, "We are ready to begin over again."

And what did those countries need? Transportation. Transportation, no matter what it cost. Cost was immaterial, for they needed to transport food from sections that raised food into sections that could not raise food, in order to prevent starvation. These locomotives which we so kindly sent for a consideration (laughter) into that country, willing to wait for our money, became the salvation of Poland, and had it not been for the one hundred and fifty locomotives which we put into Poland, Poland today would be a Bolshevistic country and re-annexed to Russia. Of the three medals that were granted for the restoration of Poland, for the victory over the Bolshevists by the Polish soldiers, one went to the Commander-in-Chief, one to the Mayor of Warsaw, who was also a military man, and one to an humble, docile, gentle American representative of the Baldwin Locomotive Works. (Applause.)

Let us take Cuba. You know all about Cuba. You live down here next-door neighbors, just across the pond. Two years ago Cuba had a catastrophe. That catastrophe in Cuba found The Baldwin Locomotive Works with about eight millions of dollars of unpaid bills in that country. And everybody said to me, "Well now, your policy of confidence, your policy of trust, your willingness to grant credit to the people of this island, where is it going to land you in your business?" I said, "That's all right, wait." I didn't withdraw my agents from Cuba; I doubled them. I gave the Cubans everything that they needed in the way of transportation to put themselves on their feet, and said to them: "We will wait until you are able to pay for it." Today we have the confidence of those controlling business in Cuba. I said the other day that Cuba only owed us some two millions of dollars instead of eight millions; but I have just had a telephone message from Philadelphia saying Cuba had come across again, and that today Cuba's indebtedness to us was less than a million dollars. (Applause.) And the transportation facilities of Cuba today, acquired through The Baldwin Locomotive Works on a credit basis, have put that country in a position to earn her way, to pay her way, to build up her industries, to get back again. And, believe me, gentlemen, don't fear to trust any business man in Cuba, because he will pay you in the end.

Go and do business with the outside world. Go and grasp the situation. Don't sit here in Birmingham and wait for business to come to you. Birmingham must go out and bring the business of the world into Birmingham. (Applause.) You have an outlet to the sea that is second to none. The city of Mobile today should be a pride to any man who lives in this section of the country. It affords the opportunity of draining this great country to the north of you, with all of its wonderful riches, for it doesn't take me more than a few hours to realize the riches that lie in this valley. I would call it Paradise Valley. Mobile is your outlet. But where is your outlet going to lead to? Not to Pennsylvania, not to Illinois, not to these places up yonder that are loaded up to the neck with the kind of stuff that you produce, but to the world that is waiting for it. Get out into the world. Create business for the Southland, and put us in the North where we belong—so we will have to go out and do likewise. You have it within your power to succeed and before you know where you are, if you develop trade with the outside world, you will have the capital of the North down here pleading for a share in your birthright. (Applause.)

South America, for instance, promotes transportation in the great lands of the Argentine. You have all heard of them. You may not know a damn thing about them, if you haven't been there. But they are wonderful, and the Argentine people are trying to build up their lines of transportation to meet their needs. Last year they said to me, "We must have locomotives; we must have cars, but we have no money. We have no money to use locomotives and cars even if we had them." Now, what did we do about it? We said, "Go ahead; we will lend you three million dollars to get your road to running, if you will give us orders for ten million dollars' worth of cars and locomotives." They replied, "Good." Down there they are making money faster than the bills come due. They are developing the country and so have the business to handle, but they must have the capital necessary to buy the machinery to handle it with. They recognize that without transportation, no matter what it costs, the general business of that country could not improve. As fast as they improve the transportation facilities of the country, just that fast will the country progress.

Consider Mexico. Someone asked, who would trust a Mexican? A fellow up in the North is willing to trust a Mexican, and that fellow is your humble servant who speaks to you today. I went to President Obregon, and I said, "Let's have an understanding. I want to tell you what I think of you, and you can then tell me what you think of me." And we agreed. (Laughter.) I made him a proposition on a credit basis, and he came back to me with a stunner. He said that he didn't have any money to get ready to run his railroad; that if I would lend him the money to start with, he would buy the locomotives. And we did it, and he is running his railroads, and building up his country by means of his transportation systems, and we are getting our money also.

We must have confidence, gentlemen, for most people are as honest as we are, or perhaps a little more so, and then business will be easy. Have confidence in yourselves. When you go out from Birmingham to do business with the outside world, don't talk first about your business. Talk about every other business that is done in Birmingham except your own; and before you get through, the other fellow will say, "What have you got to sell?" And you will get his order. (Laughter and applause.) He will think Birmingham must be a wonderful place, if all these other things are done there, and then he will want to know all about your business and the honor and credit that you give to your fellow business men will be the greatest agent that you can have in selling your own goods.

In the North, I never go out to sell Baldwin locomotives. I go out to sell the general business of this country. And why? Because unless the general business of this country is good, my business is not worth a damn. (Laughter and applause.) My business depends upon the general business of the country, not upon the friendship or favoritism of anybody that runs a railroad or uses a locomotive. No one ever buys a locomotive until they can't possibly haul the freight that is offered because of the generally prosperous conditions of the country, and then I get business. I am the last to receive it, and the first to lose it.

Don't feel for one minute that I am traveling through the Southland with no selfish interest whatever, but my interest is in the general business of this country, and the general business of the Southland, its prosperity, the efficiency of its people, and their development, the promotion of its wealth and resources, because, indirectly, I will in time be called upon for my share of work, and I will prosper accordingly.

Now, gentlemen, we came here to bring before the business communities of the Southland the necessity of improving our transportation facilities. The time has passed for electing those political demagogues to Congress or to our State legislatures, who attempt to climb into prominence by crying down the industries of the country and by arbitrarily endeavoring to reduce their compensation for services rendered, without any knowledge of what those services cost and what they mean to the United States of America. We must think of the common people, the people who work for a living. We must remember that these people are deserving of the highest rate of pay that they can get. You can't make money by cutting wages; take it from me. You must make money by devising schemes to get the best results from those who labor with you, while ensuring them maximum pay. Take the last four decades. For forty years I have operated The

Baldwin Locomotive Works, and today, with the largest and highest labor rates that have ever been paid to American workmen, the percentage of the labor cost of our product is lower than it has been throughout the forty years that I have been in charge. This is because of the fact that every workman, every officer, and myself, have tried to put in the greatest quantity of labor-saving machinery, of labor-elevating machinery, so that we could enable our men to make higher wages with less distress. And that is the secret of prosperity, if you want to know it; for today The Baldwin Locomotive Works is more prosperous than in any day of its history, because it recognizes the right of the common laborer to be fully compensated for his services. (Applause.)

Whenever we talk about labor, the question of the "open shop" arises; this you hear all over the United States. I am at times at a loss to know what is meant by the term open shop, because my shop is open at seven o'clock in the morning, and I am there to see that it is open at seven o'clock in the morning (laughter), and that it stays open all day, six days a week. It is open so that any American citizen, or any foreigner with good intentions, has the right to work therein. I don't give a continental whether he belongs to a so-called labor union or not; he is in free America, and in my judgment he has no need to pay a tax to any outside organization for the privilege of earning a living in this great United States of America. (Applause.)

Now, what are we going to do with our opportunities; with the railroads of this country and with the public utilities that belong to you gentlemen?—for every stockholder has a right to say what shall be done with his property. The gentlemen who are presiding over these great institutions in our country don't own them. They are our servants. They are paid by us to command. They are paid by us to give us the best results that can be obtained from them, just as are our legislators, just as is the President of the United States. They are our representatives. They don't own the government. They are there to do what the people want them to do—what is best for this country; and so the railroad official is in office to do the best that can be done for his stockholders, including the American business man. Now, let us encourage him. Let every man that is doing business like you and me, do his very best. It doesn't make any difference how much more I do than you, because your business is just as important to the United States as mine is, perhaps a little more so, just as from the springs and creeks great rivers flow. You must have the origin of business before you have its culmination. Mine may be considered in the latter class. Shippers should load their cars promptly, so the railroad can take them away promptly, and then insist that they be taken away; don't wait until the railroad comes after them. Loaded cars that are delivered to you should be unloaded promptly, and then insist upon the empties being taken away promptly, so that someone else can use them. The railroads should be compelled to give us both in quantity and quality, real service; the service that is due man to man, if we are going to succeed in this great business community, the United States of America. Nothing should block their way.

The useless cry of lower rates is heard. There may be gentlemen in this assembly whose duty it may be to secure lower rates for the community. I question the advisability of such a proposition. It is not low rates we want, gentlemen; it is more service, and better service. I could afford to pay double rates for my freight if I could get better service. in shorter time. If I can make my business turnover every three months instead of every four months, it means a difference of just three millions of dollars to The Baldwin Locomotive Works at the end of the year, and with that I could pay all my freight rates, and then have something left for the charitable institutions of this country in which we, the employees of The Baldwin Locomotive Works, reside and work.

Stop and think. You can't succeed in any business unless you make a profit. You can't succeed in the railroad business unless you make a profit.

The terminals of the country are very far short of what is required to handle our business. There is not a single passenger railroad station we have stopped in on this trip in which we were able to get off under a shed, except in Mobile, and there, for once, we were under a shed out of the rain. At every other passenger station we got out in the rain and walked to the station wet and muddy up to our necks. We used to brag about the railroads of this great country, about their terminals, about their equipment, their stations, and their magnificence. People from all over the world came to see them. But God forbid that they should come to see them now, because our facilities of those days have outlived their usefulness, and they must be replaced. But how can they be replaced? They can only be replaced by an indirect tax upon the business of the country. We should all be willing to pay a little more for the service, provided we get it, and depend upon railroad officials' loyalty to their stockholders to ensure putting their surplus money, if they have got any, into increasing facilities which they have to offer the community, and by which they do business.

Now, this plea to you gentlemen as business men is not prompted on my part because I am a locomotive builder. I explained to you before that these railroad companies don't particularly like us. They would be glad of the opportunity to cease buying locomotives, because their expenses would be reduced to that extent. So we are a necessary evil to these railroads, for when they do need locomotives, they come to us and want them next week, and we must prepare to furnish them.

But the general business of the country, the business that you gentlemen are in, is not only our salvation, but is the salvation of the entire country.

Your Governor has spoken about the wonderful resources you have in Birmingham, and in this wonderful valley that I have traversed this morning. The mines, furnaces, and manufacturing establishments that I visited only substantiate to me the truthfulness of his assertion. You have in the State of Alabama a future that few of you realize, but you should realize it, and develop it, and you should develop it without the miserable feeling of selfish interest. Be interested in what your neighbor is doing; assist him in the development of his line of work, assist your people in the development of the State. Be liberal in mind and pocket. Don't worry about your money. Money isn't worth a damn unless you can use it. You want to get rid of the coupon clippers, and get money invested. (Applause.) I have been in debt ever since I started out in life, and I hope to be in debt when I die; in debt to the industries of this country, not only through investing what I have, but by putting up collateral to get more money to invest in other things which I think are for the benefit of this country. (Applause.) Don't be afraid. There is nobody who works so hard as one in debt, when he is honest. Therefore, get the best work out of yourselves instead of clipping coupons. Borrow on your money, invest in the interest of this State, and go after it "die dog or eat hatchet." Don't be afraid of losing your money, because you are all ahead of the game. There is not a man in this room who is not ahead of the game, I don't care what his circumstances are, because when you were born into the world, let me remind you, you didn't even have a shirt on your back. (Laughter and applause.) And you can't take much more out with you.

See to those boys up there from the industrial school, who are playing for our benefit; get hold of them and hold them to you. Don't worry about the indiscretions of youth. The greatest men of our country are those who committed some indiscretion in youth. No boy ever went to jail because of me, no matter what he did. Every boy had the opportunity to correct himself and get on his feet; and I can take you to our works and point out to you men that fell back in their youth, and are now the reliable bone and blood of our establishment. (Applause.)

Don't turn anybody down. We are all human, and we want to be human. We want to work for one another, not for ourselves; and the fellow who works for the other fellow, and the other fellow and the other fellow, is going to be the biggest fellow of them all.

THE RAILROADS AND SAFETY[1]

P. E. CROWLEY

Mr. Crowley, President of the New York Central Lines, delivered this talk from the National Broadcasting Company studios, New York, May 4, 1928.

The subject of safety is the first question which occupies those who are responsible for the management of the country's railroads. "Safety First," is the motto and to obtain that the railroads of the country have been engaged and are now engaged in the greatest safety campaign of history.

They are doing this because safety is an essential to successful railroad operation and they are doing it in an organized way. They have installed all practical devices, which will assist in the safe and successful operation of their trains. They have improved their roadbeds; they have improved their rolling stock; they have organized safety committees among their employes, and are carrying on a campaign of education among them; and to those railroad employes, be they either employes of the roads with which I am connected, or of other roads, I would like to say that the safety results which have been accomplished by the railroads have been due, in large measure, to their cooperation and their alertness in recognizing the value of this campaign.

The American Railway Association, which is an association made up of all the railroads in the country, working generally for the advancement of the railroad art, has its safety section which is continually studying questions relating to this subject for the purpose of making suggestions as to the betterment of conditions and the increase of safety. One of the highest honors which can be attained by an individual railroad is the winning of the Harriman Safety Medal. This is an annual competition among the railroads of the country, and the railroad showing to the committee of award the best record of safety achievement receives the medal.

The result has been that in comparison with the annual total of deaths and injuries from accident in the United States, the number due to railroad accidents is negligible. During the year 1928, out of the millions of passengers carried upon railroad trains, sixteen were killed in train accidents. From accidents of all kinds in the United States last year 100,000 deaths occurred, and two and one-half million people were injured. I am calling attention to this in the beginning because the comparison shows what can be accomplished by care and by vigilance.

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[1] By permission of the author.

Eternal Vigilance Is Railroad's Watchword

Railroad operation and railroad employment are necessarily exacting. Trains are heavy, numerous and operated at high speed. They must be operated at all times and under all conditions of weather and temperature. Employes must be constantly vigilant; appliances must be in practically perfect condition; operations must be synchronized to a degree which is incredible to those who are not engaged in the business. The traveler who steps upon a train to go, for instance, from New York to Chicago, knows nothing of the time and of the care which has been necessary to prepare that train for its journey or of the care which is exercised on practically every foot of its journey to land it at its destination safely and on time.

The preparation of a train for its journey, whether the train is a freight train, or a fast passenger train, and the actual operation of the train during its journey require precision, concentration and team work on the part of those responsible for the operation.

A railroad yard, in which a train is being assembled, is a mass of tracks and switches. Cars are continually being shunted in one direction or another, switched from one track to another, and it is often necessary when a number of cars are being pushed or hauled on one track, to send each one of these cars through a different switch to a different track. The men must be ever alert; there can be no confusion of signals, no misunderstanding of orders. Cars must be put where they belong and must be there at the time they ought to be there. When the train is made up each car must be examined carefully to see that nothing has happened to it since it was brought into the yard, (at which time it was inspected) and the time it was put into the train, to make it unfit for further travel.

Rigid Inspection for Every Train Movement

Appliances are tested; the locomotive is groomed as carefully for its journey as a race horse for a race, and when it is attached to the train the air brakes, which control the operation of the train, are again tested. If it is a passenger train it is taken to the station, where it is to receive passengers, and before the passengers are allowed to board it, it is again inspected and tested.

When the engineer starts a passenger train out of a station on its journey he knows that every foot of track over which he is to go has been carefully inspected by a competent person; he knows that the signal department has the signals in perfect working condition; he knows that every human precaution has been taken to guard him in his journey, but he also knows that he must be watchful, operate his train according to the orders given or the warnings received, and in this way fill his place in the great army of men who are working with him to let him and his human load arrive safely.

As a result of all this, according to official figures, railway employment today is only one-third as hazardous as it was fifteen years ago. Last year there was a reduction of two-thirds in the number of fatalities to railroad employes and a like reduction in the number of injuries to them as compared with 1913. While there were a number of accidents to trespassers, for people will always trespass upon railroad tracks, that number has been decreased by more than one-half during the same period of time.

All this has been the result of care, of vigilance, of patient effort, and of constant and unremitting work in improving railroad facilities, and in installing the most advanced devices as soon as these are shown to be practical. The invention, development and use of the air brake meant a great deal. The universal adoption of the automatic coupler, the use of which makes it unnecessary for employes to guide the link which attaches one car to another, reduced accidents tremendously. The installation of automatic signals, now universal on busy roads, meant a great percentage of additional safety to moving trains because in their operation, which is practically perfect, the engineer of a train is advised of what is ahead of him. If the track is clear he is told so; if the track is occupied by another train, he is warned.

Automatic Train Stop

In addition to the automatic signals, the automatic train stop, or train control, has been installed by many railroads; and the installation is proceeding at a rapid rate. This is a mechanical device, which operates with the signal, and which does not work as long as the engineer is attending to the warnings he received. If he does not pay the attention which he should to a danger or a caution signal, this device immediately acts, taking the control of his engine out of his hands and either reducing its speed or stopping it as the case requires.

The steel of the rails upon which the trains run has been the subject of the most careful study. Every railroad has its steel experts, who are constantly working in laboratories and in shops to improve the material of which the rails are made and the manufacturers are constantly working upon improved methods of producing these rails in order that they may not only sustain the weight of the trains which travel over them, but be so perfect in every way that there is no danger of their breaking under the strain.

Locomotives are stoked by mechanical means, giving the fireman on the engine more opportunity to act with the engineer in watching the track and observing his signals.

In the manufacture of railroad equipment, that is, locomotives, cars and other facilities used upon railroads, the fullest confidence is had in the care and skill of those to whom the work is entrusted, but in spite of this confidence, a railroad company, from the time of giving an order, maintains its own inspectors at the plant, who inspect the material before it is put in the machine, and inspect every process of manufacture, not because they do not trust the manufacturer, but because they wish to assure themselves that everything will be right.

Safety Pays in Direct Results

Many millions of dollars are being spent every year in straightening tracks, abolishing curves, lowering grades, strengthening bridges and in every way possible improving the roadbeds, all for the purpose of insuring, so far as human means can do, the safety of the traveling public. That this has been effective is proved, it seems to me, by last year's record of train accidents, in which, as I have said, but sixteen passengers lost their lives.

So far I have spoken of railroad operation, of possible train accidents, and of the progress which we, in the railroads, have made in reducing the number of accidents and in minimizing, so far as we can, the fatalities and injuries occurring through railroad operation. But the railroads are interested very deeply in other accidents which concern not only the railroads, but the public.

THE GRADE CROSSING PROBLEM

In this country we have almost a quarter of a million railroad grade crossings, and at these crossings, accidents to motorists and to others who cross the tracks are continually occurring. Trains are striking automobiles and automobiles are striking trains, always with unfortunate results to the motorists. Twenty-five percent of the grade crossing accidents in the country last year were caused by automobiles running into trains, and of the other seventy-five percent, most of them, if not all of them, could have been avoided by more care on the part of the driver of the car. Instances have occurred in which impatient motorists have driven through crossing gates, which were lowered at crossings at the time, to warn people of an approaching train, and to act as a possible obstruction to their going upon the track. But people drive through them and are either hit by the train, or run into the side of it. Accidents have occurred in which motorists have actually run down railroad employes, who were endeavoring to warn them of the approach of the train, and to keep them from going upon the track.

The progress of a railroad locomotive is confined to the track upon which it runs, and it takes a very short time to go over the crossing. It travels at high speed with a heavy train behind it, and it cannot be stopped in a few feet. An automobile can be stopped almost at once, and those of you who are listening in and who are drivers of cars and drive across railroad crossings at grade, can do an enormous amount of good in the direction of safety by approaching crossings more carefully; by not trying to beat the train across the crossing, and by stoping your car for the short time it is necessary for the train to get out of the way and permit you to proceed.

It is true that the deaths from automobile accidents at railroad crossings are only nine percent of the total killed in such accidents at other places, but that nine percent can be reduced to practically nothing by the exercise of more care on the part of the drivers. For it is a fact that the majority of these accidents occur in the day time, at places where there is a clear view of an approaching train and in communities in which the drivers reside. I am not finding fault with anyone. I know what the urge is to keep going and to get across the track. But I know, too, that a heavy train is stronger than an automobile and have learned that it is safer to be careful or to wait, than to take a chance.

GRADE CROSSING PROBLEM AND THE FUTURE

While it is true that the ultimate remedy lies in the elimination of grade crossings, the solution of the problem in this way as an immediate remedy is acknowledged to be impossible by reason of the prohibitive cost conservatively estimated at 20 billion dollars—fifty times the cost of the Panama Canal. And how long would it take? No one can tell, but probably generations. Neither you nor I will live to see the job completed. Recently new crossings have been established faster than old ones have been eliminated.

It seems to me that we all have a very definite part in this work. The physical conditions can be improved by not adding any more crossings and by the elimination of a large number already existing, through a process of consolidation, by the rerouting of highways. This plan, coupled with the progressive policy of crossing elimination which has been in effect for several years, will more rapidly decrease the number of opportunities for crossing accidents.

But there is another side to the grade crossing accident picture. Remember, no locomotive ever went out of its way to attack an automobile. Practically all crossing accidents can be prevented if the driver will approach the crossing prepared to stop; and make sure that the way is clear before attempting to cross the tracks. I hope this suggestion will be heeded by all motorists.

These are the cases in which the railroads are directly interested in safety; the protection of their passengers, the protection of their employes, the minimizing of the danger of accident to those who are lawfully upon their tracks, or crossing them. They are doing their part in their own affairs and have been highly successful in their efforts. By warning signals, the erection of crossing gates, by the employment of crossing men wherever necessary, and by participating in the actual elimination of many dangerous crossings, they are endeavoring to do their part toward the safety of those who may come upon the tracks.

THE PART THE PUBLIC PLAYS

But they are also interested in the wider question of the safety of the public who may not be in or about railroad premises, because, as citizens, those responsible for the management of the railroads are deeply interested in all questions relating to the good of the communities. So I have been very glad to come here tonight and make my small contribution to this great movement and to say to you that in this safety campaign, which the broadcasting company and the National Safety Council are carrying on, everyone can help.

Safety is the result of the exercise of care. We have proved that in the operation of the railroads. All of you can prove it in everyday life. All of us ought to work to reduce this appalling total of 100,000 deaths and two and one-half million injuries a year from accidents, and we can reduce it by being careful in the way we go about our daily affairs.

CONQUERING NEW TRANSPORTATION FRONTIERS[1]

FRED W. SARGENT

Mr. Sargent is President of the Chicago and North Western Railway Company. He delivered this address at the convention of the Association of Life Insurance Presidents, New York, Dec. 9, 1927.

The public mind generally gives to the word "frontier" a geographical meaning. This is no doubt because in the continental United States we have always thought of a frontier as the extreme part of the country. The word at once conveys the idea of the extreme limit of occupied territory in its geographical sense.

It has, however, a broader significance and may be properly applied to the line which marks the limit of progress, or the point at which on a large scale civilization meets obstacles placed in the path of its onward progress. In the field of physical science these obstacles are found in the form of ultra-conservatism. Less than a century ago they were manifested here and there as out-croppings of religious bigotry and superstition. The same might be said with relation to the field of medical and surgical science.

The last thirty years, however, has broken down the final barriers and the public mind has generally come to accept the belief that there is no limit to the good that may be accomplished for mankind in the fields of pure science. This frontier of popular resistance has been effectively conquered and mankind owes a debt of gratitude to our scientific pioneers that it will never be able to pay. The wilderness which these scientific pioneers have had to conquer has been that of popular ignorance, superstition, bigotry, and, in a social and political way, selfishness and indifference with relation to the greatest good to the greatest number.

While this wilderness of popular resistance in the United States has been effectively overcome because of the great good to the masses produced by scientific achievements, yet it is reasonably conservative to say that we are only at the beginning of a truly scientific age, and that the next quarter of a century will witness developments equally as startling as those that have come to pass in the third of a century that has just gone.

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We are, however, still in the pioneer stage, struggling desperately with social, political and economic principles, and the advance in this field has, comparatively speaking, lagged far behind the onward march of scientific accomplishments. We have only made a fair beginning in the field of constructive legislative policies looking to the permanent progress of an advancing and enlightened civilization.

Time will not permit an excursion into the various ramifications of this subject, and I must confine my remarks in the discussion of this statement as applied to the field of transportation.

It is indeed fitting that your organization should pause in the midst of its deliberations long enough to give at least passing consideration to the importance of transportation as an agency of human progress. Indeed, I know of no organization outside of transportation agencies themselves, more vitally interested in this subject than the Association of Life Insurance Presidents, representing sixty-six of the largest companies in the United States and Canada. You are vitally interested in this subject because you have been the means of gathering together enormous sums of money which you have loaned to railroad companies, and through which railroad development thus far has in a large measure been made possible. I do not have complete figures brought down to the end of the year 1927, but, at the close of 1926, fifty-two of the largest life insurance companies of America owned railroad securities of the face value of $2,413,000,000. This is the largest single class of investments which life insurance companies own outside of direct mortgages upon farm and other classes of property.

The officers of your companies are trustees for these funds, and as such trustees you will be derelict in your duty if you fail to exercise the utmost care looking to the integrity and the stability of these investments.

Every individual holder of a life insurance policy has a direct financial interest in the welfare of the railroads of the United States, and has a right to look to the chief executives of our great life insurance companies for statesmanlike leadership that will help carry us through what now appears to be the last great legislative frontier, where we now seem to be struggling in a wilderness of regulation administered by forty-nine separate sovereignties, to-wit, the forty-eight states of the union and the Federal government.

The first great legislative frontier was conquered when John Marshall wrote for the Supreme Court of the United States that epoch-making decision in the case of Gibbons vs. Ogden. The decision was handed down in March, 1824. Up to this time the several states had insisted upon the exclusive right to regulate all commerce, not only within their borders, but between the states and upon all navigable streams and waters. Every possible argument was advanced against the exercise of authority by the Federal government over interstate commerce. Every conceivable obstacle was thrown in the way of a decision that would set commerce free as between the states and upon the navigable streams. Had the decision of the Supreme Court of the United States been otherwise, we can now see, looking backward, that the cause of transportation would have been set back for at least a quarter of a century, and until such time as the public should be convinced through the sheer force of necessity that conflicting regulations by the different states would create an intolerable situation.

In that memorable opinion which, as Albert J. Beveridge in his "Life of John Marshall" so well says, made commerce free, John Marshall among other things said:

> Powerful and ingenious minds, taking, as postulates, that the powers expressly granted to the government of the Union, are to be contracted, by construction, into the narrowest possible compass, and that the original powers of the States are retained, if any possible construction will retain them, may, by a course of well digested, but refined and metaphysical reasoning, founded on these premises, explain away the constitution of our country, and leave it a magnificent structure indeed, to look at, but totally unfit for use.
>
> They may so entangle and perplex the understanding, as to obscure principles which were before thought quite plain, and induce doubts where, if the mind were to pursue its own course, none would be perceived.
>
> In such a case, it is peculiarly necessary to recur to safe and fundamental principles to sustain those principles, and, when sustained, to make them the tests of the arguments to be examined.

In this opinion the Supreme Court of the United States "established the supremacy of Congress over commerce among the States and announced the absolute power of the Federal government to control trade with foreign nations."

With this accomplished the first real legislative frontier was passed, and there followed within a comparatively short period of time the development of interstate water and rail transportation to an extent unequalled in any other country or in any other similar period in the history of mankind. Those, however, who opposed the national theory of transportation were numerous and powerful. They appealed to the popular imagination with every conceivable argument intended to incite the multitude. For the most part the names of those obstructionists have passed from the public memory, but because of this decision, among others, John Marshall stands out as the greatest statesman and jurist of all times.

We are now in the midst of another legislative frontier that in my judgment can only be successfully conquered by the wide dissemination amongst the masses of the people of the true facts as they relate to the various agencies of transportation.

There are in the United States today, in round numbers, 250,000 miles of railroad-owned property. There are 238,186 miles of main track of Class 1 railroads. The total value of these railroads, including all property devoted to the common carrier business, as tentatively fixed by the Interstate Commerce Commission in 1920 is $18,900,000,000. Since this value was established tentatively for rate-making purposes the railroads have added thereto capital expenditures for additions and betterments equal to $4,000,000,000. Therefore, at the present time the total tentative or preliminary value of all Class 1 railroads in the United States as fixed by the Interstate Commerce Commission for rate-making purposes is at least $22,000,000,000.

More than one-tenth of this value is represented by securities owned by fifty-two of the largest life insurance companies represented by this Association. The question is, shall they be gradually dissipated through a policy of regulation that looks only to the immediate and temporary gain of an inadequate structure of rates, rather than to take the long view that will enable us to see the ultimate advantage that will be gained by the economic and social structure as a whole if our transportation agencies are permitted to prosper and become healthy and vigorous, thus enabling them to render that efficient service which is indispensable to the industrial development of America.

The power of the Federal government to regulate commerce has been established. The question as to whether that power is to be wisely exercised yet remains to be demonstrated. The problems are numerous, and we have with us now as in the days of John Marshall, the "left wing," that thinks only of immediate political gain, and seems either unable or unwilling to visualize the great good that would come through a national stable policy of friendly rather than antagonistic railway regulation.

In some quarters we hear a demand for the appointment of Interstate Commerce Commissioners by regions, the only purpose being to make railroad rates the subject of political barter or trade, a revival, if you please, of the "pork barrel" method of administration with the owners of the properties ultimately holding only the empty barrel.

Already the railroads have been legislated out of the Panama Canal and off of the Great Lakes. They were called upon through taxation to help build the Canal, and are now not only prohibited from using it, but are also prohibited under the law from competing for the business that the Canal takes from them. Some day the American people will realize the injustice of such a policy and in time it will be corrected. The policy now is one sustained by the influence of certain regions which insist that if the railroads compete for the Canal business, they should at the same time be compelled to make reductions in all intermediate rates for the service of the intermediate territory. Of course the Canal is not expected to and could not serve this intermediate territory, and why the railroads should be expected to make water rates to the intermediate territory before being permitted to participate in the tonnage which is now taken from them by virtue of the Canal, is difficult to understand.

At the present time the Government is in the throes of attempting to determine what constitutes value as applied to railroad properties. In 1913 the LaFollette law providing for a complete physical valuation was enacted, prompted by the belief that it would demonstrate that the railroads were grossly over-capitalized. Now that the contrary has been clearly established, and true value likely to exceed by a handsome margin the total amount of outstanding stocks and bonds, we find on the part of the Government almost a right about face, and indeed in some places of authority the theory advanced that prudent investment only should be the measure.

I have just finished reading a brief filed upon the authority of and for the Interstate Commerce Commission in a valuation case before the Supreme Court of the United States, and after so doing I am reminded of those forceful words of John Marshall wherein he says in substance that "Refined and metaphysical reasoning may explain away the Constitution of our country, and leave it a magnificent structure indeed to look at, but totally unfit for use."

Indeed, it seems like a strange anomaly to have the Government itself as one of the litigants against one of its citizens, attempting to establish some new definition of value that would completely ignore the fact that railroad properties, though charged with a public function, are yet privately owned. In the brief to which I refer the Government of the United States is arguing to the Government of the United States that value should be determined by the level of rates that the Government of the United States is willing to fix, rather than that the value which represents the security back of the privately owned property should be determined by the ordinary standards and the constitutional right of rates measured thereby.

It is argued that value as applied in the ordinary sense must not be allowed because it would require rates higher than the traffic could bear. It is hard to understand why the constitutional protection against confiscation should be cast aside because of the argument that to give force to such constitutional protection might allow rates higher than the traffic could bear. If the traffic will not bear such rates, then, of course, they cannot and will not be made, but this fact should not be advanced as a reason for destroying the constitutional protection thrown about the private ownership of all private property whether or not it is impressed with the public service.

Up to 1920, substantially all legislation of both the national Congress and the state governments had been of a restrictive and repressive character. The Transportation Act for the first time since regulation began manifested a desire on the part of the national Congress for a real constructive policy that would give to the Government a national transportation system, so necessary if we are to go forward under a policy of permanent progress, and so essential to the economic development of the country as a whole.

Already, however, we find demands here and there for the repeal of that policy, which, if successful, would constitute an invitation to the rate-making authorities to fix rates upon a basis that would not produce a fair return for the institutions and the men and women whose investments have made our railroads possible.

Rates, of course, must first be just and reasonable, and they must be such as the traffic will reasonably bear. If they can be made just and reasonable and such as the traffic will bear, and yet produce a fair return upon the true value of the property, then it is the duty of the Interstate Commerce Commission to maintain them upon such a basis, and this is all they are directed to do under the existing law. Such has been the construction which the Commission itself has at various times placed upon the Transportation Act, but in its practical administration thereof it has never yet fixed rates that would produce a fair return over the average years since the war upon the value of the transportation plant of the country, as such value is conceded to exist by the Commission itself. Indeed, following what it construes to be the mandate in the so-called Hoch-Smith Resolution, the Commission has strongly intimated that it intends to reduce rates on a large part of the tonnage of the granger railroads as rapidly as they may improve their financial condition, regardless of the question as to whether or not they may at the time be earning a fair return.

I mention the foregoing matters not for the purpose of undertaking here any extended discussion thereof, but for the purpose of directing your attention to the trend of political and administrative thought upon the subject of railroad regulation; a trend which indicates that we have not yet passed the last frontier, and that the railroads, if they are to survive under private ownership, must themselves undertake a more aggressive campaign to educate the public with relation not only to sound underlying principles, but to the wise and practical administration thereof if we are to go forward with an efficient system of transportation, keeping step with the requirements of commerce.

In attempting to adopt such an aggressive campaign the railroads may, and I believe they should, solicit your earnest and friendly co-operation to the end that your policy holders may be protected as to the investments already made, and encouraged to look with favor upon even greater investments in the future in supplying new capital, which is each year indispensable to the enlargement of the transportation plant.

We must not by a niggardly and unwise policy permit our railroads to drift back again to the state of inefficiency which resulted in Government control and operation upon our entrance into the World War.

The railroads constitute the greatest single industry in America. They and the companies directly dependent upon them for business are our largest contributors to prosperity. The great bulk of the money which the railroads collect is immediately paid back to the people in the form of wages, taxes, and in the purchase of supplies and materials. The mass of the people cannot afford to have such an industry crippled by "refined and metaphysical reasoning" founded on premises which concede to the carriers only a bare living.

Railroads must be permitted to earn something more than merely enough to pay the interest on their bonds and a fair return to their stockholders, provided, of course, that just and reasonable rates, measured by what the traffic will reasonably bear, will produce such a result. They must be permitted to earn a surplus in the good years to tide them over periods of depression, and they ought to be permitted to earn a sufficient surplus every year to take care of those capital expenditures of a public character which in and of themselves add nothing to earning capacity.

To insist on a policy that will reduce rates as rapidly as the carriers show improvement in their financial condition, and which proposes to measure value by some refined and metaphysical system of reasoning unknown to the practical business world, and to continue a scheme of regulation that dips into the details of every-day practical management such as we are today experiencing on every hand, and to insist upon recapturing earnings from the carriers in their good years and leaving them to bear their entire losses in the poor years, means that we are heading again toward a state of inefficiency that in the long run cannot be in the interest of the greater public welfare.

Railway managements have not lost faith in the ultimate fairness of the American public, although they are beginning to be sorely tried. Since the railroads were returned to private management they have secured and invested in the improvement of their properties over four billions of dollars of new capital. They have done this largely on the faith of things yet unseen and unrealized; they have had one fairly good year, to-wit, 1926, out of the seven years the present law has been in effect, and relying upon which law these enormous investments have been made. They now awaken to the fact that the Interstate Commerce Commission has in a recent case strongly indicated that it intends to reduce rates on a large part of their tonnage as rapidly as their financial condition improves, and they are threatened at every session of Congress with laws aimed at the reduction of their revenues.

I believe that the general trend of popular thinking is more favorable to the railroads today than it has been in the last quarter of a century, but the immediate problem is to translate this more favorable attitude into practical results through the proper legislative and administrative channels. This is your problem as well as the problem of the railroads and all other thinking men interested in the maintenance of an efficient and adequate system of transportation, to the end that our people may be kept prosperous, our investors made secure, and our shippers saved those enormous losses which always follow periods of car shortages and inefficient facilities, which losses, when they arise as they have at various periods in the past, are so great as to make the savings secured by scaling down rates comparatively insignificant.

I beseech your earnest attention to this subject, and I feel that I can state with confidence that if you will but give to these transportation problems that same energy and great ability that you give to the immediate administration of your own affairs, we will pass through the present frontier of legislative entanglements in safety, and the future years will make the general public your debtors for a valuable service well rendered, just as we are now indebted to those men in the days of John Marshall who overcame the resistance that threatened the freedom of commerce between the states.

PUBLIC UTILITIES AS ALLIES OF INDUSTRY[1]

E. K. HALL

Mr. Hall, Vice-President of the American Telephone and Telegraph Company, delivered this address before the Boston Chamber of Commerce, Mar. 1, 1923.

Mr. President and Gentlemen of the Chamber: Coming back to neighborly and warmhearted Boston, and coming back to the Boston Chamber of Commerce among so many of my old friends and associates, I would like to take for myself that handsome welcome that you just gave me as a sort of a "welcome home" to a prodigal son, but I am too modest. It is more becoming for me to say, as the political speakers say in the middle of the campaign when they rise to speak and the audience gives them a royal welcome, "Gentlemen, far be it from me—far be it from me to accept for myself any part of this magnificent demonstration you have just made! Too well do I know that it is not for me, but for the noble cause which I have the honor to represent this day upon this platform."

Now in the announcements of this series of meetings that you are holding this winter, the title on the outside in big letters was "Allies of Industry." I am not going to argue today that the public utilities are allies of industry. That ought not ever to require any argument. What I am going to undertake to do is to suggest how you can make those allies strong, powerful allies, and how you can get the most out of them.

In speaking of the public utilities I mean all of the public service companies,—the transportation companies, steam and electric, the great energy and light producing companies, the gas companies, and the communication companies. These companies are more than allies. They are agencies. They are the agencies around which and upon which modern civilization and business and commerce are built,—literally that and just that. Modern business and industry are built around these agencies. They render a fundamental service. It is more than an allied service.

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[1] By permission of the author.

It is in the nature of a public service because they serve all of the public, either directly or indirectly. If these agencies were provided by the public or governmental agencies, and they were all of them made one hundred per cent dependable, just what the public needed everywhere and at all times, we would have a basis for stability and prosperity in industry that this country has never seen. But it has been found that the government cannot furnish this service effectively because of changing administrations, lack of foresight, unwillingness to pick the best man for the job, political atmosphere and various other reasons. It has been demonstrated that it is utterly hopeless to expect to get this kind of service from governmental agencies.

Therefore, we have them in the form that we have them today,—public utilities financed by private capital and not from the public treasury, managed by business men selected by the people who have risked their money and put it into the business, and regulated in the public interest by public authority. In other words, these agencies, these allies, are in the form of business corporations. And they are your allies, essential to the successful conduct of your business.

Now, what kind of allies do you want? You don't want weak, anaemic, crippled, halting, shrivelling, broken down, bankrupt allies. You want them strong, alive, dependable, on the job, progressive and growing. That is the kind of allies you want.

That means, talking in terms of business corporations, because that is what they are—that means prosperous corporations; that means prosperous public utilities. Now, a prosperous public utility is not the same thing as a prosperous industrial corporation; that is, we use a very different yardstick to find out whether a public utility is prosperous than we do to find out whether an industrial concern is prosperous.

If we say that the ordinary, industrial concern is prosperous, it generally means that in certain periods, or in prosperous times, that industry makes large or sometimes very large profits—large enough in one or more prosperous years to fill the valleys of the lean years, and very often large enough so that after paying reasonable dividends, there are profits enough left to "plough" back into the business and build it up. Practically the entire growth of the business in a thoroughly prosperous industrial concern has often been provided by the excess profits from the business itself. The Ford Motor Car Company is a conspicuous example.

The public utility is not at all like that. A public utility never expects and never did expect in any one year or period of years to make large "profits" as you gentlemen in industry and commerce consider "profits." Under the rules of the game all that the public utilities are entitled to get and all they are asking to get is money enough to pay their bills, to pay good, fair, reasonable wages to the men and women who are giving the service,—good, fair, reasonable wages for the capital that is making the service possible, and—just one thing more—a reasonable margin over and above that every year. Not a big margin, not a margin that will in itself provide for enlarging business in the future, but just margin enough to give a sufficient cushion of safety to maintain beyond question the credit of the public utility. That is all they ask, just that reasonable margin which from any yardstick that you gentlemen use in your business is a narrow margin, a very narrow margin.

I have tried to define the yardstick by the application of which we ordinarily say an industrial or commercial concern is prosperous, and the different yardstick which is used in connection with the utility.

Now prosperity is a word we all like to use. It indicates health, and growth, and progress, and action, and life. We do not hesitate, any of us, to say "See the textile industries of New England. They are prosperous, and it is a good thing for New England that they are prosperous." "The leather business is coming back into prosperity again and it is a fine thing for New England." "The fish industry is prosperous. It is a good thing for the State." I suppose there is not a town in the United States where the people do not like to say "Look at our bank. It is a prosperous bank. It is a great asset to the community." We are delighted when we see reports of the great agricultural industries of the country and learn that they are prosperous. We like the sound. It makes us feel good. It's a good sign. And so in the mining industry and the steel industry, and any other. But how many of you ever heard people going up and down the street enthusiastically saying, "We have nothing but prosperous utilities in this town. We have prosperous railroads in New England. Isn't it great?"

Why is it? Why aren't we glad to say, "Here is a prosperous utility?" Well, I don't know. There are not a great many of them about whom you can say it anyhow. But I think it is because of an erroneous impression that somehow or other, if the utilities prosper, they prosper at the expense of the public. Now, nothing could be further from the truth. If the utilities prosper, they never prosper at the expense of the public. But if they *fail* to prosper, it is *always* at the expense of the public. If a public utility fails to prosper it is *always* at the expense of the public. If a public utility fails to prosper its stockholders may suffer inconvenience or even hardship. Perhaps they can stand it if they have to. We have seen lots of cases where they did stand it and live. The lack of prosperity may go to a point where the employees suffer to some extent, but the public always suffers if the utilities fail to prosper.

So, the first point I want to make is this: If you want your utilities to work for you, make them strong; that is make your utilities prosperous and keep them prosperous! And that means that you will be getting the service you need today and you will be guaranteeing your service for tomorrow, and for next year and for five years from now and ten years from now.

One of the most conclusive pieces of evidence as to the value of the service of these utilities to industry and commerce and to society at large lies in this fact, that the demand for these services, all of them, transportation, power and light, telephone, telegraph—has increased and today is increasing much faster than the population increases, very much faster. I hope you will pardon me if I use my illustrations from my own utility. That is the one in regard to which I know the facts. I am speaking for all. The principles underlying all are the same.

Since 1900, the population of the United States has increased 37 per cent. You would naturally expect that the demand for telephone service would increase somewhere around 37 per cent. During that period the demand for telephone service has increased, instead of 37 per cent, over 1000 per cent, or tenfold since the year 1900. This increase is mainly accounted for by the demand created by greater industrial activity.

That demand on the part of the public for more service cannot be met by going out and employing more people. If it could be done that way, it would be easy. It just does not work that way, that is all. It is true that we must get more people, yes, but we must get the appliances for them to work with first. Before we can begin to give that service we must construct the plants and install the equipment without which these utilities have no facilities for rendering service.

I wish I could make it clear to you gentlemen, because it brings up the problem that is less understood and more misunderstood on the part of the public in regard to the utilities than any other one thing, and that is this continual demand that you create and that we have to meet, if we can meet it, to give you more, more, more, better, better, better, improved, improved, improved, different, different, service.

It does not look very big when you take it up in small units. You see the electric light company running a cable along the street. It does not occur to you that is very much of a program. You happen to know that in a certain city they are putting in hard pavement on certain streets, and the electric light company and the telephone company have to abandon their overhead wires and construct a new cable system underground. You say that it is a good thing, it improves the looks of the street. Then there are new wires here, a new switchboard, an enlarged power plant, a new siding here, a new station there, and all that sort of thing. No single item looks very large, but when one comes to add them all up together it runs into money that almost staggers one.

Let me just illustrate. This is a simple looking "piece of junk" that I hold in my hand. It is a section of a telephone cable. It looks like a bunch of wires stuck together with something and some lead wrapped around it. That is a section of aerial telephone cable that is under construction now from New York to Chicago. When it is completed you people are going to use it. It is going to insure your service from the East to the West. Those Lake sleet storms are not going to interfere any more with your conversations between here and the West unless the poles go down. You probably agree it is a good thing. What do you suppose it will cost? It has been three years in building. It will take another year to complete it. When it is completed from New York to Chicago, with all the appliances, loading coils, relays, and other delicate apparatus necessary to make it work the way you want to have it work, it is going to cost $35,000,000—just that one cable from New York to Chicago.

Another illustration, if I may take it from my own utility. I have explained that it is no use to employ more people to give you more service when you want more service, until we first get tools for them. When we take on one additional employee, we have to put out $6,000 to get him tools before he can go to work. Or to state it with strict accuracy our average investment for plant per employee is about $6,000.

In my own company or, rather, in the Bell System, we are planning this year to spend in new money for additional plant which you people have already indicated you need for your service, close to $150,000,000, and as far as we can see, it is the same program for the next four years, without any diminution and possibly with some increase.

The people in the power and light industry estimate that what they need in the year 1923, if they do the job right and provide service that you people are ready to use if you could get it, would mean not a nickel less than half a billion of dollars. I don't dare try to tell you what it would mean in the transportation industry, street railway and steam roads, or gas industry, for they have been held back so long. I don't know what it would mean. I guess it would stagger us all if we could know what those figures are and what this country really needs from the utilities.

Now here is a point I want to make very clear, if I can, that by the very nature of the public utility business it requires perfectly tremendous capital investments. I think in all of the utilities it is now well in excess of fifty billions of dollars. That is an almost unthinkable amount of money. You gentlemen think of fifty billions of dollars permanently invested in your industries or in the commercial concerns of the country and you try to visualize the progress you would make with that amount of capital provided you also had the market. But you must remember that you turn over your capital two and three or four or six times a year. Do you realize that in the public utility business it takes two or three or four, or, in some instances, five years, before the capital is turned over once? In other words, one of the features of the public utility business is the tremendous capital outlay that it requires as a permanent investment. Not temporary borrowing and temporary capital, but permanent investment. The enormous amounts of fixed capital required and the necessity of continuous additions to that capital are features of the public utility business around which lies one of its greatest, if not its greatest problem.

I have said something about the new money that these utilities require during the years to come. Mind you, that new money does not go in for the purpose of making more money for the people that have already invested their money in the business. The people that are already in, assuming that they are getting their reasonable return today, are never allowed to get any more; that is their limit, a reasonable return. This new money is not to enhance the value of the property for the people that are already investors but it is to take care of the additional service which you people are calling for. It is not to increase the present profits as it would be expected to do in an ordinary concern but just to carry on, to do the job as the community demands it.

When these utilities call for this capital to enlarge these plants to take care of your growth and your future business it is important to every industry and every business concern in this country that they get it. It is infinitely more important to you than it is to the utilities that they get it. What does their getting it depend on? It depends on credit.

What does credit depend on? Assuming reasonably efficient management, it depends on that margin I was talking about, just a good, fair, decent, able-bodied margin or surplus or cushion to come and go on. That is all. Keep that margin there and their credit will be safe. But it must be there every year. Not a skimpy one this year and a fair one that year and red figures the next year but always the steady margin. It does not need to be large. It is a pretty narrow margin as margins go. But if it is reasonable and continuous then the necessary capital will come as needed to the public utilities.

I am not talking about bond capital. I am not talking about companies financing themselves through bonds. Any concern can finance itself through bonds until it has got everything it owns in the pawn shop,—then they are through. I am talking about real credit. I am talking about the kind of credit that will bring money into the foundation of the financial structure of all these utilities with the investor a partner in the equity.

Now, I hope that I have made this point clear, that it is only by protecting the credit of your utilities today that you can make sure of your service of tomorrow. You cannot wait until you want that service and turn around and be sure of finding it at your elbow. Today you can insure it. Today you can make sure of your service five years from now. But it has got to be done today.

That margin in the public utilities is the index of whether you gentlemen are going to get the kind of service you want and need in your business three, five, and ten years from now. Industry can help itself in no way better than by protecting that margin, and that means by protecting the revenue of these utilities, your allies. I don't know of one single utility—there may be some, but I don't know of any—in the United States where it is safe today in the public interest to make any substantial, general reduction in the rates and revenues. The only mistake,—and here is a thought I would like to leave with you,—the only mistake that the utilities or the commissions regulating the utilities can make in the question of revenues and rates is by having the rates too low. That is the only mistake they can make, by having them too low. Revenues that are too high can at best only be slightly too high. The amount that they could be reduced is negligible, but the damage that can be done by rates that are too low, by destroying or impairing this margin that I am telling you about, is stupendous compared with any little apparent temporary saving to users that might be made by such reduction. Rates that are too high cannot do any harm. They will just preserve the strength of the utility, the strength of your allies, and there is always opportunity to readjust them if they ever get to a point where in the broad public interest it is safe to reduce the margin.

It has been no simple matter throughout the United States for the railroads and the power and light companies and the gas companies and the communication companies to adjust their schedules, their revenues and their business, to the value of the dollar in this after-war period. We have all had difficulty in doing it. The job in many cases is not done yet. You have found it difficult in your business, but to nobody has it been so difficult as to the utilities. The margins of even the reasonably prosperous companies are so small that it is not in the public interest to take any chances on impairing them.

Let us illustrate what those margins are. Last year in the Bell System, this margin that I am talking about, after paying all the wages, the bills and the dividends, and taking care of the depreciation of the plant—this margin was between twenty-four and twenty-five millions of dollars. Now, I don't know what you think about that for a margin. I don't know whether you think that is a fair margin or a narrow margin or a very excessive margin. Let us measure it. We have to measure it in the terms of the size and the responsibilities for service of the organization that has this margin. If the revenue of the telephone companies in the Bell System during the year 1922 had averaged one cent per telephone per day less there would not have been any margin or surplus whatsoever and the dividends could have been paid only in part. That is how big that margin is.

Is that a margin that anybody needs to be disturbed about? The only thing about that kind of a margin that needs to disturb anyone is that it is a margin that you can't experiment with if you want enlarged or better or more dependable service next year and five years from now. And when I say that margin, I am talking about comparable margins in all the public utilities that have been able to adjust their affairs to the dollar of today and establish anything approaching a safe margin—a margin that is safe for the public served by these utilities.

We must get this very clearly fixed in our minds that this question of relation between the public and the utilities in the matter of rates, is not a horse trade; it is not a case for jockeying, or cheese-paring, or for either one to try to get an apparent temporary advantage over the other. The relation between the public and the utilities is a permanent, living relationship, in which they must work along together for the benefit of each indefinitely from now through all time to come, and that is the only way it can be worked out to the advantage of industry and commerce and society.

I have one more suggestion. My first suggestion was, keep your allies prosperous; my second suggestion is, work with them. They are your allies. Work with them; not apart from them; not against them, but with them. The only job they have on earth, the only excuse for existing they have on earth, is to give you people and your industries service. All right. Get together with them and work out the way to get just the service you want. That is what you are entitled to; that is the only way that is going to be satisfactory to you or satisfactory to the utilities. So, I say, work with them.

Get acquainted with them. You will find out some things you don't know. You will find that some of you have been holding to impressions of twenty-five years ago. Twenty-five years ago you found some of the utilities doing things you didn't like, so you said, "Let's regulate them." And you put them under regulation, and when you did it you were in sort of a retaliatory mood about it, and they kind of resented it because nobody likes to be taken by the back of the neck and told, "Don't do that or you are going to get spanked." You didn't like it even when you were four years old and you don't like it now. The utilities got a bit peevish twenty years ago when you talked that way to them. But get acquainted with them now and you will find they are not peevish now. They know more about their job than they did twenty years ago. They didn't know very much about it then, but most of them come pretty near understanding what it really is now. Most of them, you will find, understand that their job is service. You will find that they have accepted this idea of regulation and ask nothing else than that it be done intelligently and impartially in the real permanent public interest.

You will find another change when you get acquainted with the utilities of today. In the old days when they were small and really just getting started, they were controlled by one man, by two men, or by a little group of men or a little clique, and it was easy for that one man who owned control or this little group of men to play the game for their own interest or their friends' interest and to think of their own interest before they did of the public interest. You will find that has practically disappeared. No one man controls any big utility. They are literally owned by the public and owned very largely and increasingly so by the people who are the users and the consumers of the service.

About the only exception to that proposition that you will find is the public utility that has failed to become prosperous and has gotten into trouble and the creditors have taken hold of it. And I will say to you that when you get a utility in that shape, where the creditors have come in and are managing it, it is a mighty difficult thing for bondholders to look at the public interest first; their first and controlling thought is to get their money back—they never dedicated their investment to a partnership with the public—they simply loaned their money and demanded collateral on which they proposed to foreclose.

Another thing that you will find is that almost universally, the utility managers recognize the fact that the public interest and their own interest are absolutely bound up and tied up together—neither can prosper at the expense of the other—and that the public interest in most cases is considered first. I have sat in a good many councils of a good many utilities the last five years. I have been able to think of only one case where there was any suggestion by any manager or executive that the public interest was not equal to or to be considered prior to that of the utility.

I have a third suggestion. Make your utilities responsible. I want to emphasize this. Make them responsible and then hold them absolutely to that responsibility. How do you do with your own organization if you want a job done, and you call in your right-hand man? You say, "Here is what we want done. You have all the authority, no restrictions. You know the policies and standards in this organization. Go ahead and get results." He is pretty likely to come back with the results. You don't say to him, "Now that is what we want done but don't work on Fridays. Keep your left hand tied behind you and walk on one foot on Thursdays. Get John Jones to help you and don't accept help from anyone else. Don't spend more than $14.20 on railroad fares and leave the office every night at 5: 00 P. M." You put the sole responsibility on him.

The greatest single mistake that I know of that has been made in the regulation of utilities is the overzealous attempt sometimes on the part of the public and sometimes on the part of the regulatory bodies to take over a portion of the responsibilities of the management of the utilities. When you put the restrictions on and say, "You can't do it this way or that way," etc.—don't you see what happens? You create a situation where your utility has an alibi. When it falls down and you complain, the utilities can and often very properly do say, "We could have done the job but you didn't give us a chance."

So I say, don't interfere with the management function. Put the responsibility for management where it belongs and then you can hold them responsible. There are already too many cases in this country where that can't be done because the responsibility has either been taken away or divided.

Now, a fourth suggestion. These are your allies we are talking about. They are rendering you service. That is their job. What is the greatest incentive for gilt-edged service, service that is alive and active with every pound of available energy behind it? What gets that kind of service? Not money. It is appreciation. Appreciation, that is the greatest reward for service,—occasional appreciation by the people who are being served.

Let me give you an illustration. Do you know what happens in a power and light company or a railroad or a telephone company when somebody writes in a letter and says, "Yesterday you took care of us in fine shape"? Do you think that letter goes into the waste basket? It does not go into the waste basket. That letter gets pretty nearly worn out just going the rounds and cheering up the gang—it keeps them on their toes for the next two weeks.

I can tell you how you could improve the quality of the service of any public utility in any community anywhere by ten to twenty per cent. Let the utility be giving just as good service as it is possible to give where there is never an expression of appreciation for the good service, but plenty of complaint for the failures. Then let that community say, "You are all right, fellows. You mess it up once in a while, but generally speaking you are all to the good and we are right with you." You will increase the quality of your service ten to twenty per cent just by that, because you put real life and humanity into it.

Those are the four suggestions. But I hear somebody saying this—I hear somebody say, "Suppose we don't put any restrictions on these public utilities; suppose we do keep them prosperous; suppose we do try to work with them; suppose we do give them the responsibility. Then suppose they don't work; they just simply don't give us the service; they just don't know their job. What are we going to do?" Well, if that should really happen, there are several things not to do. Don't do what has been done too often in the past. Don't try to cure it by reprisals. Don't try to do it by slamming them, by hurting them, by crippling them. The real answer is "It ain't going to happen." Under the conditions I have just outlined, you'll be getting the service as you want it and there can be no alibis.

In closing let me say this, I hope I have made this point clear. I am not suggesting to you gentlemen or to the public or to anybody else that you take over the problems or the troubles of the utilities. That is their job. It is not your job. You have troubles and problems of your own. What I am trying to suggest to you is how you can get from the utilities the service you need and must have if your industries are to be successful. There never was a truer statement in print than that made by this Chamber of Commerce on its announcement of this series of meetings, where it said, "Allies of Industry. The Public Utilities."

"Allies of Industry." That goes right down to the root of the whole question, that statement. I know that the public utilities are absolutely ready for that alliance. I know that if the public, under the leadership of the leaders in industry and commerce, would accept and maintain as the true one that relationship between industry and commerce and the utilities, in five years we would see public service such as has never yet been seen in this country, nor any other. It would be in the interest of everybody. It could not be to the detriment of any living soul in the United States.

The way is clear. The formula is simple, and the principle is as sound as the granite hills. The formula is easy: Give your allies a chance. Make them prosperous. Make them strong. Don't cripple them. Don't let anybody else cripple them. Protect those margins. They are small margins at best, but they are yours. They are your insurance for the service of tomorrow. Keep the responsibility for running the public utilities on the shoulders of the utilities, where it belongs. Don't give them the alibis to slide out with. Work with them and not apart from them, and give them an occasional boost.

I will tell you what that would mean. It would mean that all the capital that is necessary for all the service and every kind of service you want would simply flow into the utilities. And that would mean that the power and light companies of this country would go wherever it was necessary to go to the sources of power for electric energy for you people. It might be to the distant water powers; it might be right to the mouth of the coal mines. But if alone or in cooperation with each other they could finance the great construction programs to do it, they would go to the sources of the cheapest possible power, which is what industry is crying out for today.

What would it mean to the railroads? It would mean that by the year 1930 you would have, even for the greatly enlarged needs of the country in the year 1930, a quality of service approximating the kind of service that you had in 1900, and I don't dare try to tell you what could be done for industry by the communication companies under those conditions.

It would mean, furthermore, that all of these services would be more valuable and more dependable than ever before, that in proportion to their value all these services would be cheaper than ever before, and in many cases it would eventually mean that even the unit prices for the services would be cheaper. It would mean that the growth of the utilities would be more rapid than ever before, and, barring world conditions affecting the United States, you would see a period of protracted, consistent and stabilized prosperity such as this country has never seen.

THE COMMON AIMS OF THE LIGHT AND POWER INDUSTRY AND LIFE INSURANCE[1]

HALEY FISKE

The late Mr. Fiske, President of the Metropolitan Life Insurance Company, delivered this address before the Light and Power Convention, San Francisco, June 17, 1925.

It is an interesting and suggestive spectacle that this great Convention presents. Here we have gathered together thousands of people interested in an industry, in its financial success, and we find here two Cabinet Ministers and many public officials. It is because the industry is affected with a public interest, and, as such, has become subject to official supervision in the localities in which it operates, and has now become the object of Federal attention. Our great Secretary of Commerce, who has devoted himself unselfishly to the public service and has an extraordinary grasp of economics, comes to urge such coordination as to prevent overlapping and to eliminate waste in order to decrease costs and increase efficient service to the public. Our Secretary of Agriculture comes to show his interest in the effort to make farming profitable and farm life attractive. And now this session brings together men not financially interested in the business who see an opportunity to bring to the attention of the industry and of the public a prospect of coordinating in a common effort to better the conditions of living as regards comfort and financial benefit.

The concern of life insurance companies in your prosperity relates to investments, to labour problems, and to the living conditions of the people served by your business and ours. I had the honour three years ago of addressing you on the first subject and am rejoiced to find the increasing favour with which your business is regarded by the investing companies and by your customers. You may remember that it was then pointed out that as the assets of mutual life insurance companies —and probably 78 per cent of the life insurance of the country is in mutual insurance—belong to the policyholders, these holders are capitalists and have a direct financial interest in your business and, therefore, a direct interest in the fair treatment of you by public authorities. Many millions of copies of what I said have been distributed since and not over a score of protests have been received from policyholders.

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[1] By permission of the Metropolitan Life Insurance Company.

The following is a copy of a leaflet which the Metropolitan Life Insurance Company is sending out with renewal notices to policyholders in the Ordinary Department, which is similar to what I have just described as having been distributed during the last three years:

> The Metropolitan Life Insurance Company has in force 32,500,000 policies, insuring over 22,000,000 individual lives—nearly one-fifth of the population of the United States and Canada. Its assets of over $1,620,000,000 belong to its policyholders. This huge sum of money is their savings, held for their protection.
>
> You, the policyholders in the Metropolitan and in the other insurance companies, are the real governing body in this republic because you elect legislatures and executives. You are the foundation of political power. You have the right to fair treatment on the part of supervising and regulating officials. The Metropolitan owns over $75,000,000 of the securities of electric light and power companies. When one of these companies is unfairly treated, it is the people of the community, the voters and their dependents, who suffer. It is their savings that are depleted.
>
> Your life insurance company does not speculate. It makes investments to keep. There can be no doubt that light and power distribution is a most important element in our life, in the community, in the neighborhood, in the household. The life insurance company has the right to insist upon honest, wise, prudent administration on the part of the companies; to demand that there shall be no exploitation of population or investors; that the customers shall be fairly and generously treated; and that the public utility shall be fairly and honestly regulated.
>
> It must be recognized that *not corporate abstractions* but the *American people* are the owners of the bond capital of the companies. Every policyholder is *ipso facto* a capitalist, and an attack upon capital investments is an attack upon the wage-earners of the country. It is the working people who suffer first when there is lack of service afforded by public utility corporations, because it is they who are chiefly dependent upon such service. It is their capital invested through banks and insurance companies which develops this service for the people. It is the poor and the people of moderate means whose aggregate savings are invested in these enterprises.
>
> Plans for municipal, state or Federal ownership of public utilities often sound well as presented by their advocates. But before assenting to them every policyholder should examine them carefully, asking himself how political ownership can possibly give him results to compare with those attained through private ownership. Your life insurance company has invested in the building of highways, schools, and, in fact, all community development. You should be proud of your participation in the financial and social progress of your country.
>
> The ownership of the electric light and power companies is now in the hands of more than 2,000,000 direct investors in public utility stocks, and indirectly in the hands of millions more of bank depositors and holders of life insurance policies through their ownership of public utility bonds. This is people's

ownership under public regulation, and, as such, should be defended against assault from those who would wantonly destroy public utility investment values.

HALEY FISKE,
President.

It is encouraging to learn that the distribution of the stock of your companies has been extended and that 1,000,000 of your 12,000,000 customers now own stock to the amount of $250,000,000. There is no way in which the investment reports of insurance companies can be analyzed to show the amount of light and power bonds, but investments in public utility securities have nearly doubled in the last three years and now amount, in 41 companies representing 82 per cent of the total assets of all the companies, to $485,826,000, and there is no doubt that your business is represented there to a large extent, because there is one kind of public utility securities which has become less attractive.

Our next concern is the relation between employer and employee. We have 33,333,000 policies in force, insuring 22,000,000 individual lives, and of these we calculate over 10,500,000 over twenty years of age in the families of wage-earners. In all the companies there are about 66,000,000 industrial policies in force, insuring probably 40,000,000 lives.

For some years past what is known as "group" insurance has come into existence: a system by which one policy is issued covering all the employees of a corporation, the different individuals receiving certificates, upon which the premium is paid either by the employer or by joint contributions of employer and employee. There are over $3,500,000,000 of such insurance in force in the United States. Of the $900,000,000 in force in the Metropolitan, $70,333,000 are in 25 electric light and power companies covering 62,000 employees. Group insurance is one of the signs of the times pointing to new relationship between employer and employee. At the expense in whole or in part of the employer, his men and women are protected, all by life insurance, many by accident and health insurance. We hope and believe a new era is opening as to the relations between capital and labour. Here the representatives of both are partners in mutual protection and have a new interest in the industry. Surely, in time, this must lead to greater sympathy and understanding. The self interest of life insurance companies has led, in group insurance as in industrial insurance generally, and to some extent in ordinary insurance, to efforts on the part of the companies to promote the good health and longevity of the policyholders. The wage-earners who have industrial policies, or group insurance, receive, at least in the case of one insurance company, nursing by trained nurses in case of illness; they receive health literature in the form of pamphlets upon all the diseases to which they are heir and to which their families are subject, and general literature on health in industry; many pamphlets are on domestic life, diet of adults, the care of the child, the care of the new-born baby, the care of the sick, first aid to the injured, the care of utensils and linens, cooking, the general health of the family with particulars as to indications of coming disease.

The welfare work in group insurance is not confined to the worker, but extends to the employer. The service bureaus of the group divisions of the companies are exceedingly active and valuable. I have time only to indicate the work. Of course my experience is limited to one company, but other companies do similar work. Thus there is a publicity bureau which helps house organs, supplies posters, publishes claims, sends health bulletins; an industrial relations section which advises as to employment departments, salary rating plans and wage systems, training of employees and apprentices, and analyzes labour turnover, counsels as to employees' organizations and mutual benefit associations, and treats of profit sharing, vacation plans, cafeterias, cooperative stores, and housing; a business management bureau which exchanges information on budget preparation, control of inventories, development of sales quotas, methods of compensating salesmen; a bureau on production engineering; one on industrial information and economic research on such subjects as control over seasonal employment, looking to stabilization, methods of training foremen, recreational plans, employee representative plans with problems of labour turnover, with methods of recording going and coming, developing conclusions as to labour mobility, issuing a monthly bulletin called the *Executives' Service Bulletin;* a bureau on safety engineering; another on health and industrial hygiene, reporting on hazards and preventives of accident and disease. Members of the staff are available for visits to employers who are group policyholders—1,633 visits were made last year—discussing the terms of the policies, the use of nursing service, problems of personnel management; and they are assisting governmental agencies. One activity is directed to hygiene among the workers, housing, water supply, diet, domestic economy.

These group service bureaus have been able to render service to some of your companies. For one company it assisted in organizing a mutual benefit association embracing group health and accident insurance, with a complete set of regulations; sent information on the punch-card system of inventory control; gave full details of the Mitten plan of cooperative management; gave information on mechanical billing machines, on central meter-reading bureaus, supplied labour turnover analysis sheets. To another it gave advice about a valued employee who had developed tuberculosis. To another gave information on establishing a recreation room for employees. To another planned a programme for enabling employees to purchase company bonds on the instalment plan, showing plans of other companies. To another made suggestions regarding a system of employment records and to another on organizing an employment department. One of our engineers made a special safety survey for another company. To another the bureaus gave details of various bonus plans; assisted another in plans to investigate a public safety campaign; prepared publicity material for another to place in pay envelopes; for one of your associations it enumerated various forms of first-aid cabinets, and participated in round table discussion on personnel programmes and received thanks for what the officer of the association called a remarkable service. We have assisted some of your companies which are not policyholders. To one we furnished information on the relation between accident frequency and pay days. To another advised on an advertised cure. To another gave information on methods of handling customer applications. To another we gave complete information on establishing dental and optical clinics and furnished a good man for the position of safety engineer, and provided it with plans on the organization and operation of employee suggestion systems and veteran associations.

The life insurance companies have paid a great deal of attention to housing since shortage developed after the war and seven companies have loaned $750,000,000 on mortgages for housing, dwellings, and apartments—my own company having loaned over $282,000,000, accommodating over 82,000 families—a population, say, of 400,000 people.

Your programme calls for a good deal of attention to electric equipment for farms. The life insurance companies have for years paid special attention to the financial needs of farmers. They had loaned up to the end of last year over $1,800,000,000 on farm mortgages in 46 states and territories—our own company nearly $200,000,000.

You are familiar with the enormous extent of life insurance in the United States. It amounted to over $62,000,000,000 represented by over 85,000,000 policies. It is estimated that these policies cover over 50,000,000 individual lives; so that nearly every other person, man, woman, and child, in this country is insured. Of the number of policies in force, 66,720,000 are industrial policies on wage-earners and their families, for $11,500,000,000. Obviously, the wage-earners live in urban communities, and it is estimated that there are 56,000,000 wage earners and their families in the United States, over half of whom are insured. I have been unable to get any figures on the number of farmers insured or the amount of their insurance outside of our own company, which has approximately $106,000,000 of insurance on farmers; but it must be very large. I have the impression that in some companies, though not in ours, farmers often cover the amount of mortgage loans by life insurance—an excellent plan if not compulsory.

No one can read the literature of the electric light and power companies and talk to their representatives without realizing that their ambition is to serve an entire population. I will not deny that having one-fifth of the insurable population on our books there is an ambition on the part of the Metropolitan to get the other four-fifths! Certainly nobody who studies the American life insurance business can have any doubt that the objective point is to get everybody insured. It appears, therefore, that your business and ours are after the same people. And the same word applies to us both in our relations to the public—*service*. It is very clear that if you have your way in your offer of electrical service, life will be easier in urban and interurban communities and on farms. It is familiar that the telegraph, the telephone, the electric cars, and now the radio are bringing people together and will end, in time, the isolation of farm life. But it is not so familiar that you are aiming at ease and comfort and economy in domestic life both for city and town folk. I suppose the time will come when the housewife will sit in a chair and by touching buttons run all the activities of the household. Instead of being bent and worn she will be buxom and tend to obesity. We are trying to teach our industrial policyholders some of the conveniences they may have cheaply: thousands of our pamphlets on dish washing by electricity have gone out, and a pamphlet is about to go out describing various parts of kitchen equipment that can be economically and better used by electricity—stoves, fireless cookers, cake mixers, irons, vacuum cleaners, washing machines, wringers and mangles, and ventilation. I am amazed at the variety of your proposals for the farms. I have read some 40 ways in which electricity can be used on farms: 13 in the house by the wife, 10 in the barn, 3 for artificial lighting to multiply production, 4 in the farm shop, 4 in the dairy and 5 on the farm. You are promising such attractions for the farm that the drift to the towns may be reversed. It really excites the imagination. Farming will be such an occupation as to make us visualize factory work in the open air or the introduction of green fields in the midst of machinery.

Now this picture is alluring to one who takes pride in the life insurance business. The attractiveness of that to me is the idea of service. The payment of death claims is service; the payment of endowments is service; indemnity in sickness and accident is service. But I confess that dearest of all is the opportunity the business, and especially the industrial insurance business, gives for service outside of insurance. Every sick industrial policyholder is entitled to free service of a trained nurse and these visits number over 2,500,000 a year. We distribute health literature to the number of 40,000,000 pieces a year—have distributed 350,000,000. This literature covers general health, care of the worker, care of the mother and child, and all diseases, from heart disease, tuberculosis, and cancer, which are the worst, to obscure diseases like pellagra and hook worm. We have demonstrated that tuberculosis can be nearly wiped out in communities; that a large percentage of cases can be cured; that mortality of young children can be greatly diminished. We have cooperated with governments. We have surveyed communities. We have combated epidemics. We have advertised health essays. Through the radio we are daily instructing and leading thousands of people in indoor physical exercises. We have shown films on disease prevention to millions of people. We are giving free medical examinations by physicians not connected with the company to holders of ordinary (that is, annual premium-paying) policies. Between 1911 and 1924 we have cut down our mortality from typhoid 80 per cent, tuberculosis 53 per cent, children's diseases 55 per cent, scarlet fever 67 per cent, diphtheria 53 per cent. All of these percentages of decrease are larger than those experienced for the general population. We believe we have saved 200,000 lives among our policyholders between 1911 and 1924 over and above the saving which resulted from the decline in the general population. Since 1911 we have lengthened life among our Industrial policyholders eight and a half years as against the improvement of five and a half years in the population at large. Thirty-two per cent of our nursing visits are to maternity cases, so that the next generation of working people will be largely Metropolitan children. We attend them from the cradle to the grave.

May you in your business and we in ours have a vision from our work of *service*. A vision of contented working people in town and country; where life is made easier; where worries are removed—worry about sickness, worry about accident, worry about death, worry about drudgery—where relations of employer and employee will be cordial and mutually helpful; where the world will be brighter for the wage-earners; where home will be more comfortable and cheery; where wife will have an easier life in tenement and farm house; where children will be cared for and sturdy; and the darkness and dreariness of life now so common will disappear and the lot of working people be a happy one. You will serve for comfort of the home and farm and we will serve for the health and welfare and economic needs of the family.

THE ULTIMATE MISSION OF CHEMISTRY[1]

CHARLES H. HERTY

Mr. Herty, Industrial Consultant, delivered this address before a joint meeting of the Virginia Section, American Chemical Society, and the Woman's Club of Richmond, at Richmond, Va., Oct. 21, 1927.

Wrapped in mystery and secrecy, and spurred on by hope of high reward, alchemists of the Middle Ages sought in vain to discover the Philosopher's Stone, with which they hoped to transmute all baser metals into regal gold. In the sixteenth century another group of alchemists, led by Paracelsus, caught a nobler vision. Again it was the Philosopher's Stone they sought, but one whose powers would prove a universal cure for the ills of the human flesh. Though they failed, up out of this welter of mysticism, secrecy and empiricism there gradually evolved the science of Chemistry, and the modern method of scientific attack, namely, Research.

Industry was quick to recognize the value of this new tool, and through its applications in improvement of manufacturing processes, the betterment of quality, and the discovery of new compounds wealth is being created which amply repays the outlay. For industrial purposes a true Philosopher's Stone has been found, for gold is only a basis of currency; the manufacturer seeks bankable profits.

Only haltingly and all too inadequately has humanity followed the lead of the industrialists and recognized that the modern Philosopher's Stone for health is likewise research. Too often we accept sickness as a necessary evil, and a part of the heritage of mankind which must be endured. Moreover, the results of research on health are not a direct, profit-making undertaking, as is the case in industry.

Yet, entirely apart from the grief and suffering which result from ill-health and premature death, the economic losses resulting from sickness are enormous, and have been calculated with reasonable accuracy. As a result of careful surveys by different investigators it has been found that this nation spends annually for drugs, doctors' services, interest on hospital endowments, and for hospital maintenance, a sum of not less than one billion dollars. But this expenditure is only a minor item. For light on the still greater costs we are indebted to Dr. Louis I. Dublin, chief statistician of the Metropolitan Life Insurance Company. After a thorough study of the mass of data available through this great organization, and with full explanation of how the figures are reached, Dr. Dublin has published his conviction "that sickness costs directly in lost wages, in reduced production, as well as in the necessary care, a total of two and a quarter billion dollars a year." Yet the greater losses are ahead of us, for Dr. Dublin further states: "Having due regard for the value of life at each age period, I estimate that the total capital value of the lives which can be saved annually through the application of modern preventive medicine and public-health measures is over six billion dollars."

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Fifteen Billion Dollar Losses Involved

Still more do the figures mount, for in the total we must include economic losses from those forms of sickness and disease which, despite the advances of science, must be considered as at present unpreventable. At the recent annual meeting of the American Public Health Association in Cincinnati the president, Dr. Charles V. Chapin, stated: "What is unknown about maintaining and perfecting the health of mankind is far greater than what is known. The opportunities in the scientific field are as great today as before the days of Harvey, Lister and Pasteur." It is a conservative estimate which adds another six billion dollars from this source.

What staggering figures! A total of approximately fifteen billion dollars. Frankly, I cannot grasp their full significance except by comparison. There they stand, almost the equal of our national debt, and constituting an annual loss greater than all the debts owed us by foreign countries about which we talk so much, and over which the world travails today. Fifteen billion dollars! More than two-thirds of the twenty-two billion dollars required annually for feeding the nation.

Only recently the *Manufacturers Record* set forth with justifiable pride, as illustrative of the growth of the New South, an enumeration of the costs of the many beautiful medical arts centers which have arisen in various southern cities. Do we realize that such buildings really represent the tax which our people pay because of the limitations of scientific knowledge as to the ills of the flesh?

These are not questions which concern those apart from us. They come home directly to each citizen. Look over the bottles of drugs in your medical cabinet. Consult your check books as to expenses for doctors' services. Think over the hospital charges you have incurred, and then determine whether or not this is a question which comes home directly to each of you.

Chemistry's Big Problems

Perhaps we shall think clearer if we get a new conception of what our physical bodies really are—nothing more nor less than organic chemical factories wherein the most delicate and complex reactions are occurring every moment. When these reactions are normal we feel ourselves to be in good health, efficient, and energetic, but the moment they become abnormal efficiency decreases, ambition lags, and sickness pursues its usual course of misery. Our physicians apply with skill the discoveries which science makes available to them, but after all they can only administer. Further advances must be made by the trained researchers in science.

Of all the sciences involved Chemistry is predominant, especially organic and physical chemistry. In the unit cell the protoplasmic content brings us at once into the field of organic chemistry, and the flow of materials into and out from these cells presents intricate problems of colloid chemistry. The glands of the body are constantly producing minute quantities of hormones, organic compounds about which we know so little, yet enough to understand how deeply these secretions affect health, temperament, and emotions. The inhalation of oxygen causes changes in the blood stream which for years we have thought were well understood, yet in the light of the work done in the laboratory of the United States Public Health Service by Dr. Mansfield Clark it is probable that an entirely new interpretation will have to be given to reactions which have so long formed the basis of physiological diagnoses. The disruption of chemical equilibria within our bodies results in many important changes; perhaps the final explanation for the common cold lies just here. In health organic reactions are taking place under normal velocities, but when by some catalytic agency these reactions are accelerated or retarded, trouble begins. Hydrogenion concentration is a term in daily use in all biochemical laboratories. I need but mention the beneficent services of chemo-therapy in furnishing far-reaching specific cures. Bear in mind how little we know as yet about the vitamines. The varying recommendations as to diet, from year to year, reveal the many unsolved questions in metabolism. Problems of all sorts confront us. One's body is a chemical factory which through its very nature makes intensely difficult the research necessary to solve these problems, but is there anyone who in his heart doubts the eventual ability of science to find the solutions?

The very difficulties make all the more urgent a determined and comprehensive attack. I would not utter one word to detract from the high praise due those already at work in this field. In our universities men and women are giving unselfishly of their time, energy, and enthusiasm, yet after all such work is in most cases secondary to their teaching duties, and all too frequently funds for experimental equipment are pitifully small. Moreover, in many cases such work is all too isolated, too individualistic. In endowed institutions, made possible by the generosity of men of wealth, scientists are giving their entire time, but the number of such institutions is very limited, while the problems are legion.

The Hospital's Function

In a few, but only a few, of our hospitals there is a linking up of the clinical evidence with the fundamental point of view of the scientists. Some day that situation will be changed. Are our hospital authorities content with supplying beds and medical advice for an unending stream of the sick? Will they not catch the larger vision that from these sick beds science can gain inestimable help in preventing those now well from undertaking so sad a journey?

No one will testify more willingly than physicians themselves to the fundamental importance of chemistry in the cure of sickness. They were once students in medical colleges. A glance at the curricula of those times readily explains the lack of knowledge of chemistry on the part of the physician in his daily practice, but he knows that it is chemistry that is needed, and he is seeking that aid. But, like the industrialist of a decade ago, he all too frequently uses the chemist merely as a routine analyst. The industrialist still uses the analytical chemist, but his loud clamor today is for the research chemist. So must it be in medicine.

The research chemist will tell you immediately that his work alone does not suffice. Co-operation of all branches of science is required. The chemist, the bacteriologist, the pharmacologist, the physicist, the clinician, must work side by side if truth is to be reached quickly. Happily that spirit of co-operation is increasing. It should be fostered.

Whence will come the supply of chemists adequately trained for this all-important service? Naturally, from our universities. In a recent survey of the lines of chemical research in progress by graduate students, the National Research Council finds that of the 1882 graduate students in Chemistry, 475 are in the field of organic chemistry, and 207 in physiological chemistry. If we add those who are specializing in colloid chemistry, in catalysis, in pharmacological, pharmaceutical, sanitary, and food chemistry, we see at once how large a proportion of trained men and women will leave our universities in the next few years equipped for this line of research. One of the greatest benefits of the establishment of a complete organic chemical industry in this country since the war is the directive tendency toward research which can be applied equally for wealth or for health.

Popular Action Necessary

Researchers, however, cannot live by enthusiasm alone; they must be paid at least a decent living wage. From what sources may we expect that financial aid which will enable this increasing army waging the battle against disease to function efficiently? We can look forward confidently to the founding of more and greater endowed institutions. The continued growth of the graduate schools of our universities means the multiplication of the hands and the time of able professors. But after all, is it the true American spirit which would lead us to be content to await the largess of the rich or the devoted enthusiasm of professorial staffs in order to remove through scientific research this financial drain upon each of us as individual citizens? No! In other lines of financial betterment we do not sit idly by, twiddling our thumbs and waiting for a legacy from some rich citizen unknown to us, or trusting that some generous friend will share with us the product of his brain. We are proud of the fact that we hustle for ourselves, and we count as our most precious heritage that independent spirit which leads us to look after our own business. Invoking the same spirit of independence, I say to you that since we are all subject to sickness, since ill-health is characteristic of no particular section, and is no respecter of age, sex, or position in life, the financing of research for better health is a matter for united action by all our people.

Fortunately it is not necessary to make a house to house campaign to solicit funds for such an undertaking. The machinery is already provided—appropriations by Congress from the federal taxes. This method is already being utilized for the ailments of business through the splendid work of the Department of Commerce; for the sickness of crops and livestock in the energetic laboratories of the Department of Agriculture. When the corn borer threatened this great staple crop the last Congress, in a jiffy, appropriated ten million dollars for its exterminaton. Hogs and cows receive their full meed of attention from the national community chest—but oh how pitiful in comparison are the appropriations for scientific research on the ills of the human flesh. Remembering that these problems are fundamentally chemical, it will doubtless amaze you to learn that of the many millions of public funds appropriated last year only thirty to forty thousand dollars were available for the chemical research work of the Hygienic Laboratory of the United States Public Health Service, in contrast with the ten million dollars for the corn borer, and in the face of an annual economic loss through sickness of fifteen billion dollars. And this in a day when every tongue is loud in praise of the wonderful accomplishments of science.

The Ransdell Bill

Hon. Joseph E. Ransdell, United States Senator from Louisiana, has seen the light. In the closing days of the last session he introduced a measure which aims to correct this situation. He proposes to reintroduce this bill immediately after the opening of Congress in December; hearings will be held and the measure will be vigorously pushed.

The Ransdell bill, S. 5835, provides for the creation of a National Institute of Health within the U. S. Public Health Service. No new administrative body is contemplated, the Institute constituting an integral part of the Public Health Service, a branch of the government service which has always been held in high esteem for its efficiency. An appropriation is included adequate for the construction of suitable buildings, and for equipment and maintenance. A system of fellowships will enable trained researchers to pursue investigations either in Washington or at distant points in this country or foreign lands, wherever the problem can be worked upon best. Acceptance by the Public Health Service of gifts from individuals who wish to endow specific lines of research is authorized. The bill includes all of the provisions of the Parker bill, H. R. 10125, a measure which seeks greater efficiency in government health work by combining all of these activities within the Public Health Service.

Unanimous Endorsements

Senator Ransdell's bill received the unanimous endorsement of the organized physicians of the country, the American Medical Association, at the annual meeting in Washington in May of this year. Just a few days ago in Cincinnati it received similar approval from the American Public Health Association, while the American Chemical Society started the wave of popular approval by a unanimous vote of the Council at Richmond, Va., last spring.

What possible obstacles will confront the bill when it comes up for action by the next Congress?

First: A lack of understanding on the part of members of Congress. As citizens it is our duty to see that our lawmakers are informed regarding the situation and its remedy.

Second: The economy program of the Administration. But surely it would be false economy to refuse to spend a few million dollars in order to save the billions now being sacrificed.

Third: Flood control will be in the forefront of the thoughts of every member of Congress. Rightly so, for the recent Mississippi flood with its attendant loss of life and of property estimated at from two hundred and fifty million dollars to five hundred million dollars was a national disaster, and the avoidance of its recurrence is a national responsibility. The rush of those mighty waters awoke us to our duty. The ravages of sickness and disease, however, are confined to the quiet bed-room, and so ubiquitous are these afflictions that they do not constitute news. Devastating floods come only at intervals, but the far greater economic losses from ill-health are continuous. These billions are entirely apart from the suffering and sorrow which no power of mathematics can estimate. From out these shadows science can lead the way to light. With conviction in your hearts, speed the day when America shall make this great contribution to humanity.

COLOR IN INDUSTRY[1]

MARGARET HAYDEN RORKE

Mrs. Rorke is Managing Director of the Textile Color Card Association of the United States, New York. She delivered this address before the New York Editorial Conference, New York, Apr. 13, 1928.

The traditional first raiment of Adam and Eve was—green. But since it is impossible for our imagination to picture a paradise without glorious, vibrant colors, it's a safe bet that Eve was not content with monochromatic harmony in fashion. Although the first chroniclers ungraciously neglected the recording of Eve's psychological color reactions, it's quite certain that she would never have partaken of that seductive apple if it had not been red, a luscious, flirtatious, tantalizing red!

Now perhaps poor Adam was color blind. He may have been the first contributor to that 4 per cent of modern Adams who scientists claim cannot see certain hues. Who knows but this may have been the very reason why Adam had to be coaxed to eat the apple. But not so with Eve. Being a woman, color whispered to her—it lured, it fascinated, it tempted—and thus it is and ever shall be with every Eve. Color is one of the oldest and most powerful sensations man has been subject to. Across the span of all ages, evidence comes to us that color antedates by many cultural epochs and cycles the development of fabrics, of pottery and even of basketry—the trilogy of basic arts—those progenitors of our modern artistic expression.

The story of color is the story of the human race. The painting of the human body was a highly developed art and was closely related to the religious, social and artistic lives of many people, even before the coming of that greatest of all fundamental arts—weaving. From the shadows of primitive man's first shelter, where upon its walls he scratched his mark and left the vestiges of his handiwork, come the first chronicles of color, warp and woof. A piece of colored cloth is but the mute witness of man's long journey from savagery to civilization. Even as we must peer into the dimness of antiquity to learn the secret of distaff and spindle, so must we search far, far beyond in our quest for color and its place in industrial evolution.

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The part played by the symbolism of color in man's life is reflected in his arts and crafts. As the late Dr. Stewart Culin tells us, it was when belief in magic was widespread that the significance of color was established with fundamental associations which are the heritage of today. The use of red as a predominating color of many ancient peoples was not the reflection of a crude taste but the belief in its magic power. Yellow, color of the metal, gold, was reserved by the ancient Japanese for the exclusive use of the emperor. Never was the use of color left to caprice or mere chance. Red, with its mystic potency, made necessary the vermilion pencil with which the emperor signed his documents. A red seal made valid all imperial decrees. The old lapidary was a necromancer, a dispenser of charms. The blue of the turquoise, the green of the jade, were priceless because their color was the hue associated with immortality, with verdure, with life, with spiritual rebirth. The little blue and green faïence amulets and the images the Egyptians placed close to their dead bear witness of the prowess of these lovely hues. The sacred magic colors of most of our Indian tribes were yellow, blue, red, white and black, all of which have colored their many crafts.

With the advent of Christianity, color assumed a new significance. Red became the symbol of fortitude; green the expression of hope; purple the penitential color; white and blue the symbols of purity, glory and innocence. Yellow denoted treachery and weakness, black the epitome of profound sorrow—death. Thus, just as man's habits, his thoughts, his life itself were influenced by color, so he, in turn, transmitted this influence into his industrial arts.

The dyeing of textiles was of great importance to the ancients. Although their palette was very limited, the purity of their colors gave them a rare beauty. Because of its peculiar susceptibility to color, man prized silk above all other textiles, thus creating an industry and establishing a commerce that became one of the great dynamic forces of the world. To trace the history of ancient pigments makes a lovely tale. The purple of the Phoenicians, the saffron of the Egyptians, the indigo and the red of the kermes insect, so priceless and so sought after by India and Persia, were ever the source and depository of the world's color sense and inspiration.

There is a very ancient and beautiful Persian legend that tells of Christ being a dyer and that, as an apprentice one day, He was instructed to dye some fabrics in different hues. Christ, so the legend runs, placed all of the materials in one vat, and the dyer, when he took them out, found to his great astonishment that each was dyed a different color. Until the seventeenth century, in Persia, a dye house was called Christ's workshop.

But long before silk was discovered the art of dyeing other fibers was being practised in India and Egypt. Pliny tells of garments being painted by the Egyptians in a most unique manner, the white cloths being smeared not with colors but with drugs which absorbed the colors. The application did not show on the cloth until it was immersed in hot dyeing fluid, and, when removed, appeared to be painted with several different colors. This process was later termed "polygenetic color dyeing" and thus illustrates how deeply the Egyptians had delved into the mystery of dyes and their application. Much of their knowledge, however, had been gathered from India, which may be considered the real birthplace of both the dyeing and the staining of fabrics.

Although the ancient Greeks derived their culture and civilization from the Egyptians, yet, in the art of dyeing, they do not seem to have acquired much perfection. At least they did not advance in the same degree as the Romans, who brought the art to a higher standard; and although the Chinese possessed the most perfect medium of color expression—silk—they did not practise dyeing to any great extent until they were taught by the Hindoos and Persians who had attained a very high degree of civilization.

After the fall of the Roman Empire, when all progress in the sciences and arts had ceased, the Moors and Saracens advanced in civilization to a marked degree, and they, in turn, brought their arts and sciences —such as paper making and the extraction and use of dyes—to a high level. At the time of the Crusades, the Christians brought back from the Holy Land many arts of the East, including dyeing. And so, era after era, mankind has toiled wearily but unceasingly to discover pigments, that color might decorate his raiment and domicile. The blue of the Egyptians, the green of the Romans, the red of the Saracens, the purple of the Phoenicians, and so on down through the ages, race after race have contributed their share to make the heritage of modern dyestuff production.

The beauty of colors as portrayed by textiles has grown apace with industrial progress. As silk and other fabrics have passed through their most effective and virile medium of expression, today we have the accumulated beauty of the colors of all ages, treasures of heritage from which modern industry gathers inspiration.

History has shown us that all nations, races and peoples have introduced color into their industries, first through the development of their textile arts, and all, no doubt, because of the vanity of woman, because of her love of raiment, her flair for color and her quest for beauty. Woman's vanity has been the greatest stimulus to industry and should be added to the beatitudes!

Gradually, down through the ages, other industries responded to Eve's color reactions until the Italian Renaissance, with its wealth of esthetic beauty, brought color into almost every industry that the ingenuity of man had conceived. Color flourished, design was glorified and the knowledge of art, its appreciation and its development, brought man to his highest culture. Then gradually came a decadence in industrial art and the nineteenth century with its mid-Victorian era found industry at its lowest artistic ebb. Then, as a reaction, the school of romanticism blossomed—picturesque and colorful—and the rebellion of the romantics against everything that was restrained and banal bore fruit. The influence of Victor Hugo, Lamartine, Delacroix, Corot, Millet, revitalized the art movement which sought new and greater expression in industries and crafts. Then came new rendition of color, new interpretations. This transition was slow but fundamental. In spite of the devastating effects of the World War, industry, art and color stand today at the gateway to another great renaissance, in the development of which America can justly and proudly claim a very large share. It is entirely due to her efforts that colors used for commercial purposes, through the dictates and influence of fashion, can be standardized and reduced to a really practical equation without in the least robbing color of the merits of artistry. In so far as its application to the needs of commerce, the twentieth century marks the furthest advancement in color.

All industries today are realizing the stimulating power of color and its psychological reaction on the consumer. Color is the most vital factor in the merchandising of any produce. The line of demarcation is well defined, however, between the purely esthetic and the commercial value. It is because of this aspect, the importance of which is recognized by all industries, that the American producer is recognizing the great economic value of color standardization as promoted by the Textile Color Card Association of the United States.

The association is the great color coordinator of American industry, the founder of a commercial color language. It is the recognized authority and arbiter of color in fashion. It creates and standardizes, through the American color cards with their world-wide circulation, the colors American industry uses. These cards represent careful research, study and analysis of staple colors, semi-staple and novelty shades such as represent the volume of color consumption.

The Textile Color Card Association links the correlated industries together through industrial committees and trade associations so that constructive seasonal color programs can be promoted, color problems between industries adjusted and the economic production of color fostered. Through its influence, a great color consciousness has been awakened in the American people. Industries have been brought closer to the arts, and trades have been revitalized. More and more we are responding to color. Modern life is indeed vibrant with it. In every phase of our social and industrial existence, its prevailing color themes find expression.

Everywhere our eyes turn advertising brings its color message, a message that grows more beautiful each year, because of closer study of color composition, line and form. Softly tinted slate, in dulcet mauve, green and blue, tops our roofs. Slate no longer grey, drab and prosaic takes on the personality of color and ceases to be passé.

Woods no longer in vogue turn to chromatic values. Witness the bird's-eye maple which, once beautiful in its native hue, lost its prestige. It now assumes a sartorial dress and—presto—a new wood in lovely mellow tones of wine, frosty green and rosy-beige becomes another fashion for interior trims.

Brick, once of commonplace rusty red, takes on a sprightly calico appearance. It has had a polychrome facial massage. House paint, once restricted to a small palette, now vies with all the nuances of Dame Fashion. By color magic old furniture becomes new, kitchen chairs are elevated to the elegance of the drawing room. Unpainted furniture is sold in car loads so that newlyweds can revel in an orgy of house decoration.

Typewriters now sing to the tune of prismatic blues. Umbrellas, no longer lugubrious, blossom like spring flowers to cheer one on a rainy day. Rubbers and arctics become decorative and are colorfully atune with the ensemble.

Metal beds and steel desks are popularly active because they don't look like metal—color did the trick. Soft, restful greens and sunny yellows are now dispelling the austerity of hospital white. The therapeutical value of color is being acknowledged by our medicos, a fact which helps to disclaim the valuation placed on their professional suffix by the small boy who defined the letters M. D. as "mentally deficient."

The well-balanced color scheme has entered the home, the business office, the factory, proving the modern theory that the more we allow our esthetic taste to assert itself the more harmony and efficiency we generate.

Linoleum, once the plebeian of floor coverings, has been elevated to the aristocracy because of its new treatment and application of color and design. The snowy white of table linen, forced to take a back seat in fashion by the sudden and prolonged vogue for bare tables and lace covers, has staged a comeback only by the help of color and its most subtle variations. The glass industry has been revived by amber, ruby, emerald and rose. Millions of candles burn nightly because they give added color, harmony or contrast to glassware, china or napery.

And now our kitchens turn to the rainbow. The enamel-wear industry has opened a color cupboard. Our pots and pans, our stoves, have cast aside their puritanical and prophylactic guise, and color plays an important part in the preparation of our daily menus. Being a woman I know that we shall never go back to those commonplace, uninteresting cooking utensils any more than that we shall stop bobbing our hair.

And so on runs the tale. All of which is another way of saying that color has acted like a blood transfusion to many industries and trades. It has revived some that were rapidly sinking into a coma or state of inertia that presaged the coming of the end. Industry has opened the door to color and will *never* close it. There can be no more graphic illustration of this than our automobile industry. It has developed a highly sensitized color appreciation with the result that it has been stimulated and aided through keeping in tune with the color scheme of fashion and woman's taste.

Where is this awakening and consciousness of color leading us? To beauty and to art; to increased sales, to quicker turnovers, if handled properly, intelligently and adroitly. To those untrained and unfamiliar to its industrial application, color can be dangerous when not held in restraint. Color in industry needs organization. Mass production demands temperate and economic employment of color which can be done only by coordination. This is particularly pertinent to an industry newly applying color, such as kitchen ware. I use this as an example because it is the one that is now attracting the most attention on account of its novelty, but the same principle applies to any industry that goes in quest of color stimulation.

America's great organizing powers are exemplified in her trade association movement—a movement bound closely to her industrial life.

This faculty for constructive organizing has made possible the organizing of industrial color. It has unified color thought and coordinated its promotion.

So my advice to any industry or trade just opening the door to the chromatic scale is to organize, to agree and to concentrate on a limited color range so that colors will not run riot; so that there will be a uniformity of shade and color harmony in order to prevent color from defeating its helpful and stimulating powers. Individualism in industry has passed. It is only through cooperative effort and organization that industries can reach their true economic place in the sun.

The medium through which industry can organize, in color production, can in no way hamper the exploitation of the creative and the artistic. Good design without good color application is lost because the eye absorbs and carries color to the brain far more quickly than line. There is no better selling point than color in the art industries.

Color is always generic. The characteristics of any period come to us in all forms of its artistic legacy. The temperament of a nation is reflected in its color sense. As a nation develops its love for art so must it develop a higher and finer color taste. One is the attribute of the other. The more we train and develop our color sense, applying it to our every day life in our dress, our home, our industries, as well as our arts and crafts, the greater we shall become as a nation and a centre of culture.

All industries should encourage and foster the employment of trained colorists. We should encourage a finer appreciation of color in the youth of America. Our art students, our textile and trade schools, should be helped to develop a higher sense of commercial color in addition to the esthetic side of color. Every trade publication should urge this movement so that our industrial artists of the future may spread the message of American industry and culture to all the world.

Again, I repeat, encourage and foster color appreciation, especially in the male species, and reduce that 4 per cent of modern Adams who are, alas, too often lured by that forbidden fruit of the "tie that blinds" recorded so poignantly in Stoddard King's delightful ditty which goes like this:

> O, some may long for the soothing touch
> Of lavender, cream or mauve,
> But the ties I wear must possess the glare
> Of a red-hot kitchen stove.
> The books I read and the life I lead
> Are sensible, sane and mild.

I like calm hats and I don't wear spats,
But I want my neckties wild!

Give me a wild tie, brother,
One with a cosmic urge,
A tie that will swear
And rip and tear
When it sees my old blue serge.

O, some will say that a gent's cravat
Should only be seen, not heard,
But I want a tie that will make men cry
And render their vision blurred.
I yearn, I long, for a tie so strong
It will take two men to tie it.
If such there be, just show it to me—
Whatever the price, I'll buy it!

Give me a wild tie, brother,
One with a lot of sins,
A tie that will blaze
In a hectic haze
Down where the vest begins.

CLOCKS AND THE AMERICAN CLOCK INDUSTRY[1]

S. F. FERGUSON

Mr. Ferguson, President of the Clock Manufacturers' Association of America, and Director of the Seth Thomas Clock Company, gave this radio address from Station WRNY, New York, Apr. 22, 1928.

ONE OF AMERICA'S OLDEST INDUSTRIES

It is a very great pleasure and privilege to speak to you on the subject of clocks and clock manufacturing, as it is one of the oldest American industries.

To most of us a clock is a mechanism which tells us that very important thing, time. This brings up the thought: What is time and how can it be defined? In the broadest sense it might be defined as the distance between the beginning of the world and the millennium. Such a definition probably does not carry with it the many meanings of time as generally used, so if we go into the history of man and his conception of it our ideas may be clarified, at least to some extent.

The sun has been, from earliest days, the master of time. He answered the caveman's purpose very well. The rising of the sun meant that it was time to get up, his setting brought darkness and the time to go to sleep. But society in those days was simple. Next to the sun the moon is the most conspicuous of the heavenly objects. Its name means, "the measure of time." As our ancestors perceived, the moon seemed to have the strange property of changing shape; sometimes it was a brilliant disc; at others it was half-disc or a crescent; sometimes it failed to appear at all. These changes occurred over and over again —always in the same order and the same number of days apart. So primitive man began to use the moon as a means of fixing the time to meet. "At the time of the next full moon," was a popular phrase for setting a future date. For this and other reasons the moon was added to the sun as a timepiece, and man then began to show his mental resources—he was able to plan ahead. Note, however, that he was not concerned with the *passage of time* but merely upon the *fixing of a future date*. It was not a question of how long, but when?

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Before men began writing history they were taking thought of the division of time. They split the year, the month and the day into parts, and the accuracy of their divisions and their means of measuring them have in some sort been a test of the degree of men's civilization. Four thousand years ago the Chaldean astronomers had marked the path of the sun through the heavens by the signs of the Zodiac, thereby creating the twelve months. They also divided the lunar month into days and the days into hours and minutes. Sixty and its multiples and divisors were sacred numbers to the Chaldeans. There were twelve hours in their days, three hundred and sixty seconds in each hour and three hundred and sixty days in their year.

Their calendar, with some improvements in the interest of accuracy, is ours. The ancient calendar was five or six days short every year. It had twelve lunar months of thirty days each, but twelve lunar months do not make a solar year.

Julius Caesar had the calendar arranged so that the year should consist of six months of thirty days and six months of thirty-one days each —a total of three hundred and sixty-six days. This was considerably better than the preceding method, but his astronomers found that this made the year rather too long for accuracy so they provided that one of the thirty-day months (February) should have the full thirty days only once in four years. This brought the calendar very close to astronomical accuracy. The great Roman's nephew, the Emperor Augustus, or some of his flatterers, tampered with the Julian calendar a bit, not to improve it but to compliment their patron. His month of August then had thirty days. It was felt to be humiliating that the month of the "divine Augustus" should have one day less than July, the month of his distinguished uncle. So February was robbed of another day and became a twenty-eight, twenty-nine day instead of a twenty-nine, thirty day month. The extra day was added to August to the greater glory of the Emperor without changing the total of three hundred and sixty-five days to the year. That the origin of the names of the months of July and August comes from Julius and Augustus Caesar is a rather interesting bit of early history.

By the time of Pope Gregory XII it was discovered that the calendar was getting away somewhat from the exact solar year. A leap year every fourth year was too often, so changes were made to rectify these discrepancies.

ANCIENT TYPES OF TIMEKEEPERS

The measurement of time so far as the year was concerned was taken care of by astronomical observations. The measurement of parts of a day was a more difficult problem to solve. It took men several thousand years to reach a satisfactory answer. Need of an accurate measurer of short spaces of time was felt by the Chaldeans and the Babylonians, but it was not until the 17th century after Christ that the clock supplied the wants of three thousand years.

The best the Chaldeans could do was the sun dial. Under proper conditions it did pretty well. But outside the latitude for which it was built it was no good, and a cloudy day made it useless. Besides, it always ceased work at sunset. Yet it was about the best timekeeper, and certainly the one most widely used, until the coming of the modern clock. Sun dials were known all over the civilized world in ancient times.

Another ancient timekeeper was the water-clock or clepsydra. Clepsydra means "thief of water." The Chaldeans, Egyptians, Phoenicians, Greeks and Romans all used them. Reduced to its simplest terms this was a bucket with a hole in the bottom through which water leaked at a more or less regular rate of speed. If you filled the bucket at six o'clock A. M. you would know that it was somewhere near supper time when the last drop fell. But freezing weather interfered with its performance and the varying pressure of the water as the reservoir approached exhaustion made it inaccurate.

Other forms of timekeepers were the Chinese burning ropes which smouldered without blazing. These ropes were knotted at intervals and the passage of time was marked as the knots were reached. Placed between a sleeper's toes, this timekeeper may have served as the original alarm clock. Finally the sand glass came along and this was for thousands of years the most common measurer of time in general use outside of king's palaces and houses of the great.

These timekeepers were none of them "clocks" in the modern acceptance of the term. When we speak of a clock we mean a mechanism consisting of wheels and pinions driven by a weight or spring, and regulated by a pendulum or hairspring escapement. When, where and by whom clocks were first invented is a matter of great doubt.

FIRST PENDULUM CLOCK IN 1657

In the year 1657 Christian Huygens, a distinguished Dutch mathematician, made a clock which he designed. It was equipped with a pendulum and is believed to have been the first clock to which a pendulum was applied. Galileo had discovered, some seventy-five years before, the principle of the pendulum, but it had not been used to control the speed of clocks.

At about that time there were several able men in England who did much to promote timekeeping. Edward Barlow, a clergyman and scientist, invented the cylinder escapement, and a rack strike. Dr. Robert Hooks, an Oxford man, mathematician and professor of mechanics, invented the hairspring escapement for watches and clocks and also improvements in pendulum escapements. Neither of these men was a clock maker but both were scientists of high rank.

By the end of the 17th century the clock of substantial accuracy had arrived because scientific means of regulation by spring and pendulum had been achieved, and the greatest problem of timekeeping was solved.

In America, clock making began long before the Revolution. From early years of the 18th century there were competent clock makers working in the larger towns of the northern colonies—the Willards in Boston, Harland in Norwich, Conn., and lesser known craftsmen in New York and Philadelphia.

The fundamental discoveries in timekeeping, such as the hairspring and pendulum escapements, had been made before clock making began in America. Nevertheless the world owes a great debt to American makers for one thing they did achieve. They brought down the cost of clocks. Before American makers changed things the private ownership of a clock was more of a distinction than possession of an automobile is now. In the 17th century clocks were found only in churches and public buildings and they were tower clocks. Most of the small clocks were in royal palaces.

The Birth of a New Industry

About the time of the Boston Tea Party, Thomas Harland, a highly competent clock maker of London, arrived in this country and settled in Norwich, Conn. First and last he taught the "mystery" of clock making to many apprentices, some of whom attained considerable fame. Among them was a shrewd Connecticut lad. His name was Eli Terry. He is often referred to as "the father of American clock making." He was a born mechanic and had an inventive mind. From Harland he obtained a first-class training in his art. He made his first clock with wooden movement in 1792. By 1807 we find him in a small plant at Plymouth, Conn., with an order for 1,000 clocks.

This was the real beginning of American clock manufacturing as an industry. Before this the clock maker did business on a small scale, making a few movements at a time and peddling them, often on horseback, as there were no railroads in those days. People laughed at Terry, of course, and said he could not make a thousand clocks and if he did his grandsons would not live long enough to sell them. But the clocks did sell because they cost so little compared to what clocks had always cost before.

Others were quick to follow Terry's lead. A number of clock companies are now in existence which were founded in Terry's time, over one hundred years ago.

The movements or "works" were made of wood. Brass was not very generally used until after 1825. By 1837 wood works had been universally discontinued.

Most early American clocks required winding daily, but this task did not bother our grandfathers as time was not considered so precious then as it is in our present era. The clock manufacturers met the modern demand by producing eight-day clocks. When this change took place some wit wrote the following verse which illustrates the resulting confusion which sometimes arose:

> There was a man who had a clock,
> His name was Mr. Mears.
> He wound it every day
> For four and twenty years.
> At last the precious timepiece proved
> An eight-day clock to be,
> A madder man than Mr. Mears
> I would not wish to see.

During the past one hundred years from the early beginning made by the pioneer makers of clocks in America, the industry has gradually expanded; there are now about 10,000 people directly engaged in it.

AMERICA PRODUCING 11,000,000 CLOCKS A YEAR

The present annual production is about 11,000,000 clocks and in addition thereto, about 1,500,000 clock movements used in recording instruments, time switches and other devices employed where time is a factor.

The figures do not include watches, a large number of which are made in this country annually.

The question is quite often asked, "What is the difference between a watch and a clock?" A great deal of thought and study has been given to this subject by many or our leading horological experts, and they have fixed upon the following definition:

A watch is a timekeeping mechanism designed solely to be carried in the pocket or on the person.

Therefore it follows that a clock is a timekeeping mechanism not designed to be carried in the pocket or on the person. Size is the basis which governed the framing of the definition as it was found impractical to frame a definition based on the mechanical construction.

American clocks are made in so many styles today that the public has a very large assortment to select from; the taste of the most fastidious can be satisfied. There is such a large variety of clock cases, selection can be made that will fit into the decorative scheme of almost any room. They also range in size from small boudoir, desk and automobile clocks to large tower clocks for use in church steeples or large buildings. Electric clocks of various types of construction are now available and in the future will probably be in more common use than at present.

Clocks are made to strike the hour, half hour and quarter hour, or without strike, as may be desired. Chime clocks are very popular as their musical notes give a real sense of home feeling. The alarm clock, in addition to being a timepiece, performs for us the very important service of awakening us. Alarm clocks can be, and often are, useful to remind us of predetermined tasks.

In passing, may I tell you that a recent survey disclosed the fact that clocks combining as they do beauty with utility are among the most popular gifts for weddings, Christmas, anniversaries, etc. The wide range of prices in the many styles brings them within the reach of everybody.

Things to Know about Your Clock

Now let me tell you just a little about the care of your clock. As manufacturers, we not infrequently receive letters reading something like this: "We have had one of your clocks running ten years and nothing has been done to it during that time."

This is of course very flattering to the producer but we wonder if you are treating your faithful friend, the clock, quite fairly. It is a good practice and an economical one to have your clock cleaned and oiled about every two or three years by some competent jeweler. You do not neglect to have your automobile or sewing machine cleaned and oiled occasionally, so why neglect your clock? If you wish it to be a good timekeeper have it cleaned regularly.

Some clocks are constructed so that they can be turned backward, but if you are not familiar with the different kinds of clock movements it is wise, when you set your clock, to always turn it forward and not backward. Thus you obviate the possibility of doing damage.

It is, of course, inadvisable to set or wind a striking clock when it is on the "warn." By on the warn I mean during the period beginning about five minutes before it strikes and lasting until it strikes. On some clocks the warn begins a little more and on some a little less than five minutes before they strike. If you will listen to your clock you will be able to determine when this happens as it makes a little clicking noise when it goes on the warn. By remembering this little rule it may save you the annoyance of having to make an adjustment to have it strike properly.

Clock Makers Proud of Their Business

As my time is growing short, there is one question I would like to dwell on for just a few moments in conclusion.

In this old American industry there are today many men active in the management of a number of the clock companies who are direct descendants of the founders. It is not to them solely a question of a bread-winning occupation. They take pride in maintaining the standard for quality set by their forefathers and recognize the fact that their product has a very intimate association with the lives of the people in their homes. American-made clocks have obtained a well-earned reputation for quality and reliability. By maintaining this standard they feel that the American public will continue to use even more American-made clocks in the future than they have in the past.

America unquestionably leads the world today in producing clocks of the highest quality.

DEATH THROUGH ACCIDENTS[1]

ALBERT W. WHITNEY

Mr. Whitney, Associate General Manager and Actuary, National Bureau of Casualty and Surety Underwriters, and Chairman, Education Section, National Safety Council, delivered this address from the National Broadcasting Company studios, New York, Apr. 27, 1928.

Last week several tons of steel girders that were being hoisted to the twenty-fourth story of a building under construction came crashing down and hurled four men working on scaffolds to their death and narrowly avoided doing still greater destruction.

On the same day a truck driver swinging around a corner struck a little girl who was crossing the street and she was borne back lifeless to her mother who was watching at the window.

These are not exceptional happenings. Last year there were ninety-five thousand such deaths in the United States, ten million other serious accidents, and a monetary loss from such accidents of at least ten billion dollars. Let me state these figures again: almost a hundred thousand killed and ten million others seriously injured. That is what happened last year, that is what is happening this year, that is what will happen next year, unless you and I stop it.

The story, however, cannot be told in bare numbers. It must be told also in human terms, in the lifeless forms of little children, in crushed and bleeding bodies, in ruined hopes, in broken hearts. Then it becomes a drama, a tragedy stretching out into life-long suffering and sorrow.

We had a heavy loss of life during the brief time when we were actively engaged in the Great War and yet two such wars might be going on incessantly and not take a greater toll from us in deaths than do accidents.

But even this great loss might be endured if it were the necessary price of some great crusade which was being fought for and won. The days of heroism are not past. We can still die and suffer for a great cause. It should be some marvelously precious thing, however, to be bought and paid for at such a price.

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[1] By permission of the author.

But what a wretched mockery and travesty it all is! For there *is* no great cause, there is *nothing* being won, there is *nothing* being had in return. This is only a toll that we are paying to carelessness and haste.

But surely, I hear you say, this is at least a necessary sacrifice to progress. The world must go forward, the wheels of industry must turn, traffic must move, even if it means that men and little children be torn and crushed in the process. This, you say, must be the price that we are forced to pay for going forward, a great price to be sure but progress is a precious thing and we must pay the cost even if it be in the flesh and blood of our little children. "Accidents will happen."

Wrong again. Accidents will continue to happen from natural causes that we have not been able to bring under control, such as cyclones and earthquakes, but to say that man-made accidents due to haste and carelessness, to say that these must continue to happen is most damnably false.

All we need to do to disprove this piece of ancient cynicism is to put in evidence the control that we already have won over mischance. The United States Steel Corporation has reduced its accidents 86 per cent —14 deaths where there used to be 100, and the number is still going down. The Clark Thread Company, as a result of intensive work, has a record of 8,000,000 man hours without a lost-time accident, the equivalent of over 2,000 men working a year, working a year without an accident to one of the 2,000. One of the plants of the Du Pont Company having 350 employees went 7 years with only one accident and that a minor one. The Union Pacific Railroad developed a safety record among its employees five times as favorable as the average of its competitors.

Accidents must happen? Nonsense! They can be controlled and even eliminated where there is a will to do so.

Look, furthermore, at the results of safety teaching in the schools. In some cities a 50 to 75 per cent saving in children's lives is thus being had. Twenty thousand children are killed in accidents each year. Fifteen thousand of these might be saved if the kind of work were done in all schools that is being done in some of the best.

Accidents must happen? Nonsense! Accidents will not happen if you are determined that they shall not.

But surely, you say, there must be another side to the balance sheet. If we were to take the pains and time to make sure that we got across the street in safety, if we were to go further back and provide for the safe and orderly movement of traffic, if we were to introduce safety into our schools, if we were to guard our machinery, if we were to train our workers in careful habits, surely if we were to do all these things we should have to pay a tremendous price in delay and inefficiency; it would overburden the school curriculum, it would slow up our machinery, it would make the workers so timid and cautious that they would get nothing done. Even were we to admit that safety may be possible, yet it cannot ever be a practical thing to put into effect.

Absolutely wrong again. On the contrary, under these conditions we move our traffic more expeditiously, the human touch vitalizes our teaching, we find that machinery properly designed from the standpoint of safety is also more efficient, we find that our workers, instead of moving more slowly, move more surely and more intelligently. We find that a factory organized for safety turns out to be a factory organized for efficient production and a factory characterized by good morale. We discover that the Union Pacific Railroad has not only the highest safety record but the highest operating efficiency.

No! There is no escape from the fact that these hundred thousand deaths and these ten million injuries are nothing but a useless sacrifice. This is an account that does not balance. This is a chasm into which we cast our choicest possessions and from which nothing comes back in return. The children that are torn from our hearts, the fathers that are taken from the bosoms of their families, are only a meaningless sacrifice to haste and carelessness and to the old dogma that accidents must happen. Moloch, that delighted in human sacrifice, and the Minotaur of Crete, that demanded a toll of the best young men and maidens of Athens, were as nothing beside accident, the Moloch and the Minotaur of today.

But what, you say, would a safe world be? Perhaps after all it would be stupid and insipid, so devoid of danger and adventure that it would be unendurable. Perhaps here at last is the answer and accidents are after all the necessary price that must be paid for living in a world that is dangerous and adventurous enough to be interesting.

This again is not so. The thrills in life come from meeting worthwhile dangers successfully, the way Lindbergh and Byrd do. You don't find them taking unnecessary chances. They lead highly adventurous lives that are yet safe in the highest sense. Safety does two things. First it gives you a good adventure instead of a stupid adventure. You cut out the stupid adventure of dodging traffic but only in order to get into the fields and have the better adventure of playing golf or baseball; you cut out the careless handling of firearms but in order to be able to go on a hunting expedition. A safe world is the more truly adventurous world. Then, after safety has helped you to find the worth-while adventure, it teaches you to meet this adventure successfully. There is no thrill in failure. The game of life as well as the game of tennis consists in getting the ball back over the net.

A few thousand years ago, a few hundred years ago, even, there was some excuse for having accidents because we lived in a world over which we had scant control. Even though a man was captain of his soul he certainly was not captain of his body. But today the situation is entirely different. We live in a world which to a very high degree is under our domination. We navigate the air and the depths of the sea as well as its surface. We can send a whisper around the world. We can break matter into its ultimate parts and reassemble it in new forms and we control a multitude of powerful forces. It is no longer a world of chance and accident. It is a world of purpose. An accident is what results from failure to carry out a purpose. But failure to carry out a purpose is something that does not belong in the world of today. We have undertaken for better or for worse to shape the world to our ends. We cannot afford to fail, we cannot afford to have accidents. It is an affront to our self-respect but, furthermore, there is too much at stake. Accidents must be stamped out just as we are stamping out yellow fever, bubonic plague and tuberculosis.

Now then, what can we do about it? The first thing to do, and the absolutely necessary thing to do, before anything else can be done, is to get set right on the matter ourselves. Accidents come from within, not from without, and safety is primarily an attitude of mind. Let us get rid of the idea that accidents are a necessary part of life. Let us get into our minds the fact that accidents can be controlled, that a failure to control accidents is a failure to control ourselves and a personal disgrace.

As soon as we get this attitude of mind and a willingness to follow the thing through, even at some initial inconvenience to ourselves, there will be no difficulty in turning this attitude of mind into channels of effective action.

You will drive more carefully, you will see that your family life and your business life are organized on a safer and better basis and you will take your part in so organizing the life of the community.

You will see that your schools get started on doing genuine safety work. Such work can be done without more teachers, without more time, and without more money. It vitalizes the curriculum and by itself will cut down the accidents to children by more than half. The number of fatalities to adults is going steadily upward each year, the number of fatalities to children is going steadily downward, in spite of more children and more automobiles. This is unquestionably the result of education. Besides this, however, we shall, through such work, produce a new generation that will have a better attitude of mind to start out with. If you need advice in regard to safety work in the schools or otherwise, the National Safety Council stands ready to help you.

We are a people that are used to tackling big jobs and doing difficult things. Here is a real job: to conquer and discipline ourselves and wipe out a national disgrace. I am confident that we shall be able to do this thing and in doing it we shall rise to a higher type of living in every way.

SAFETY FOR MORE AND BETTER ADVENTURES[1]

ALBERT W. WHITNEY

This address was delivered by Mr. Whitney, Associate General Manager and Actuary, National Bureau of Casualty and Surety Underwriters, and Chairman, Education Section, National Safety Council, before the Playground and Recreation Association of America, Atlantic City, Oct. 17, 1924.

Before undertaking to trace in detail the relation between safety and recreation I want to give you a picture of what the safety movement is, for when that picture is drawn the relation will come naturally into view. The safety movement in its early stages was negative. I wonder if it is not true that the normal development of most movements is from negative to positive. They start with inhibitions against some abuse and the stage of their growth can be measured in terms of the gradual discovery of their positive content. We are now seeing religion and education grow in this way and this has been very definitely the course of development that the concept of safety has followed.

The organized safety movement was an outgrowth of the awakening of the public conscience some fifteen years ago to the appalling loss of life and limb that was going on in industry; this had as one of its other immediate consequences the enactment of workmen's compensation laws. The desire for speed and a short-sighted efficiency had made industry a savage, inhuman monster that was taking an enormous toll in human suffering. The first few years of the safety movement were necessarily taken up in the elimination of these abuses,—in the correction of bad ways of doing things. It was an emergency situation in which there was so much that was so obviously needed and so immediately needed that for a period of several years there was no time to look ahead and discover the larger social implications of the movement and how it could be coordinated with other parts of life.

It was characteristic of this stage that the development should have so largely centered about the slogan "safety first," a sentiment that is both inadequate and misleading, and it is equally characteristic of the later, more introspective stages of the movement that this slogan is being abandoned.

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[1] By permission of the author.

The safety movement is now recognized as primarily educational and in this field the flagrant ineptitude of the sentiment is particularly apparent. Safety first is an appropriate sentiment in the railroad field, for safety on trains is more desirable than speed, barbers, stock reports or ladies' maids, and safety under normal conditions may be made a prime requisite in industry. But to go into the schools with the slogan safety first, which if it is taken literally and seriously means that safety is to be counted as the prime desideratum in life, is not only to be egregiously contrary to the facts of human nature but positively immoral. It has not done the harm that might have been expected solely because our sense of humor and balance is sufficiently strong to cause us to take this sentiment with a large grain of salt, but nevertheless the time has come when the proponents of the safety movement must make it perfectly clear to the public that they are no longer really thinking in terms of safety first.

The fact is of course that safety is not the prime object in life. Exactly the contrary is true. The most important thing in the world is adventure, and by adventure I mean a fresh, first-hand experience of life. All that is worth while in life,—love, friendship, loyalty, knowledge, art, religion,—are adventures in which the human spirit goes out to experience the realities of life; if these experiences lack the element of adventure it can only mean that life is not being lived in the keen way that makes it most worth while, it can only mean that life is deficient in the finest spiritual values. Evolutionary development has been along this line. It is the daring, vital, vigorous, high-souled man and woman with the courage to face and experience the world that have survived and left descendants. Our blood is full of the urge of it and it is unlikely that civilization will be able to divert the stream of life into tamer and more ignoble channels.

But there is danger in living life in this way! Of course there is danger. Danger is woven into the very warp and woof of life. Danger cannot be taken out of life without leaving life flat and uninteresting any more than the bunkers and other hazards can be taken out of a golf-links without leaving it too easy to be worth playing over. The thrill in the game of life, quite as much as in the game of golf, consists not only in the clean long drives down the fairway but in keeping out of the bunkers and even more in playing out of the rough.

Here then is a straight, clean issue. How is the safety movement to be harmonized with a life of adventure? Have we two opposing concepts, the adventurous life on the one hand and the safe life on the other? That all depends upon what we mean by safety. If by safety we mean "safety first" in the literal sense then goodbye to adventure. But is that the real meaning of safety, is that its deep, inner meaning?

We must make a closer analysis. A ray of light falls on the situation when we realize that the word safe is incomplete by itself and must be used with a preposition. The obvious preposition is "from." But that does not help matters, for to be safe "from" something is still negative, it is an avoidance, an inhibition. But there is another preposition that can be used equally well, namely, "for." And here the difficulty begins to disappear for "safety for" is distinctly positive. "Safety from" leaves a vacancy, but this vacancy is filled by "safety for." Nature abhors a vacuum and so it appears do thought and language. Safety then instead of being merely inhibitory is in reality substitutional. It throws something out but it puts something else in its place. But what is thrown out and what is put in its place? Well, that is up to you! *You* may say what safety shall mean for you. What do you choose to have thrown out of your life and what do you choose to have put in its place? As for me, I choose adventure. I choose to have the bad adventure thrown out and the good adventure brought in, and, because I believe that adventure is in truth the deep, significant value in life, by that token I believe that we have here the real meaning of safety.

For example, you teach a boy to play foot-ball safely, or to sail a boat safely or to use a gun safely; in each case you are showing him how he can have a good adventure instead of a bad one. Instead of the bad adventure of breaking his collar-bone he can have the good adventure of carrying the ball across the goal-line; instead of the bad adventure of tipping his boat over and either ending his adventure entirely by drowning or temporarily by a stupid wait for help he can have the good adventure of sailing on to a thrilling finish; instead of ending his hunting adventure with a bullet through his leg he can have the better adventure of the chase.

This is a very different safety from the safety of "safety first." Instead of impoverishing life it does just the opposite, it makes life richer and more adventurous. Instead of "safety first" a better slogan would be "safety for more and better adventures."

Safety, then, is leagued together in the noble company of recreation, art, love, religion and all the other good forces of life in the work of increasing the depth and breadth and quality of life. It recognizes that there are good values and poor values in life; it gives us the chance to discriminate and select those values that we most prefer. If you are not safe then you cannot select. You must take what chance and carelessness have waiting for you in the form of an accident.

Safety allows you to make a choice, to select in a purposeful way. An accident on the other hand is something that breaks into purpose, that overwhelms your purpose by the dictates of chance or stupid carelessness. "Accident" by derivation means "falling across," that is, falling across some order or purpose. When these ideas are combined, safety is seen to be the condition that makes it possible to live a purposeful life of high adventure.

In the process of evolution the survival of the fit has been the survival of the safe, using the word safe in this larger and truer sense. Those have survived who were best able to live this kind of life: this has been the true safety. Civilization is the intelligent and purposeful carrying on of processes that were begun under natural selection. Safety has quite as important a part to play therefore in the civilized life of today as in the savage life of the past.

The safety movement has been a religion to those who are giving their lives to it. Many of them could scarcely tell you why, but the reason is evident: they have been dealing with one of the great spiritual forces of life. They have done more than save lives, they have set free the force that brings adventure into life and that has the potency to create a new world.

From this point of view the relation between safety and recreation is immediately clear. Safety rids us of the bad adventure and opens the way to the good adventure but it remains for recreation actually to bring the good adventure. We must not put the children off the streets, for playing in the streets is better than not playing at all, unless we can furnish them the other, safer places in which to play. The two movements must go hand in hand. The safety movement needs the recreation movement in order to supply the better adventure. The recreation movement needs the safety movement in order to free life for the better adventure. They are both bound together as inseparable parts of the movement for a richer, better, more spiritual, more truly adventurous life.

There are certain dangers in life that are intrinsic and normal; life cannot be made fool-proof without being made insipid. Safety consists, therefore, quite as much in knowing how to face danger as in avoiding it. Safety in industry has turned out to be immediately correlated with efficiency, safety in life in general has turned out to be immediately correlated with alertness and intelligence. Accidents are stupid. It is the ignorant, untrained, unalert boy that gets hurt.

Safety has a place in the schools not primarily because of the lives that can be saved, although our experience has gone far enough to allow us to say that 10,000 children's lives a year can be saved through such education, but primarily because it has this intimate and profound spiritual connection with life, in other words it belongs in the curriculum because safety is a fundamental condition of life. If education is to be an experience of life as well as a preparation for life, or better, if it is to be an experience of life as an inevitable condition for being a preparation for life, then it must deal with such things.

The children themselves with their fresh, naïve, true intuition for fundamental values, far keener than we with our rationalizations, grasp the situation at once. They realize that they are dealing with something big and powerful that bears directly on life and they throw themselves into the work with the fervor of a crusade. To them it is another aspect of the fascinating game of living. And this leads me to speak of another contact with recreation. Safety and recreation are both parts of a purposeful life and such purposefulness is directed toward the continuation of the evolutionary process of producing a finer race, for we cannot overlook the fact that we are only a part of the great cosmic process of carrying on. But that objective is a long way off and fortunately we are paid in other more immediate human values, namely in joy of living. The soul of recreation is joy of living, but similarly with children the soul of safety is joy of living. This is quite different from the grown-up attitude. We grown-ups do things for remote reasons, and often our remote reasons are not only exceedingly remote but exceedingly poor, so that our processes become a mere senseless, uninspired treadmill. Children do things for immediate reasons and get far better value for their effort. What I am trying to express is too subtle, it eludes me, but you will, I hope, appreciate that I am bold enough to want to claim for safety a share of that marvelous joy of living that is so essentially the spirit of recreation.

Physical safety is only a part of something much larger. For the same considerations apply to physical health and to moral health and the concept of safety can be broadened to include not merely the individual but the community, the nation and the world. Take for instance the question of love. What does safety mean here? It does not mean, I assure you, being afraid of sex! Love is an adventure which is clearly within the world purpose for it is tied up to the very passing on of life itself. Safety in the field of sex is quite as much safety for the good adventure as safety from the bad adventure. And the fundamental ethical problem of the situation is this: why accept a sordid substitute instead of the real adventure itself?

Perhaps I have given you a hint of why we feel that safety belongs in the schools. The ethical approach to life in the case of children has largely broken down. If it is to be reconstructed it must be built out of the elements of the problem of living together in a purposeful way. Has not safety exactly the qualities out of which such an ethics can be built? The principles can be established in the field of physical safety where there is already such a rich emotional background of intuition and carried just as much further as may be desired. Perhaps you will be interested to know that the safety education movement is now making such rapid progress that we can with considerable assurance say that it will be only a few years until every progressive school in the country will be teaching safety.

I think perhaps you will say that this view of safety is not really a view of safety, but a view of life. Why, of course, it is a view of life! You may start where you please, if you have discovered a real approach and if you will keep on the track, you will always find yourself finally in the presence of life itself. In fact this is the test of whether you have found something worth while. The very most right thing about safety is that it leads to the more abundant life.

In closing, I want to say explicitly what I am sure you have sensed. We look at you with admiration and reverence as the modern incarnation of the joy of living. You are the 20th Century nymphs and leprechauns. You are the leaders of the bands of fairies that still may be found in the land of heart's desire. You thought we wanted to stop your play! We don't, we want to play with you. Admit us, I pray, to the glorious company of those that are trying to rediscover the joy of life!

THIS BUSINESS OF BROADCASTING [1]

FRANK A. ARNOLD

Mr. Arnold, Director of Development, National Broadcasting Company, New York, delivered this address at a meeting of the Technical Publicity Association, New York, Feb. 13, 1929.

Mr. President, Mr. Chairman and Gentlemen: We sometimes think we are a pretty old, well-settled, well-established nation. Industrially we look with something of pride at the background as it is presented historically. I picked up the other day a little clipping which was entitled "1828." The first time I used this clipping I hiked back 100 years, so I am going to read you what it says as my introduction.

> Someone has dug up the records of the Lancaster, Ohio school board back in 1828. In these records there is an account of a proposed debate as to whether railroads were practical or not. Permission was asked to hold the debate in the schoolhouse, and the minutes of the school board meeting ran as follows:
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> "You are welcome to use the schoolroom to debate all proper questions in, but such things as railroads and telegraphs are impossibilities and rank infidelities. There is nothing in the word of God about them. If God had ever desired his intelligent creatures to travel at the frightful speed of fifteen miles an hour by steam, he would have foretold it through his holy prophets.
>
> "It is a device of Satan to lead immortal souls down to hell."

That was just one hundred years ago and it so happened that soon after reading that clipping I had occasion to be a guest at the Centennial of the B. & O., and to see the history of railroading for the last one hundred years. That shows, gentlemen, just how little the best of us know about what the future is to hold for us.

If any man, to say nothing of talking about railroads, had even had vision enough to anticipate some of the things that I am going to tell you about tonight, he certainly would have been burned at the stake with the rest of the witches. Moreover, I will say this—if ten years ago I had had the audacity to stand up before a group like this or this very group and tell them in anticipation, some of the things that I am telling you tonight as accomplished facts, you probably would have been kind and courteous, but you certainly would have thought I was entirely off my base.

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[1] By permission of the author. Reprinted from the *Proceedings* of the Technical Publicity Association, New York, February, 1929.

In other words, as a nation we are developing in industrials so rapidly that he, indeed, is very courageous who today ventures to state that anything is impossible.

I have been asked to talk with you very informally tonight, and it won't be an address. It will be more of a conference because I am in the midst of men some of whom I have known as publishers, and advertising men, and men of technical training—to talk about this business of broadcasting.

The subject itself is so large that no one, regardless of his background of experience, could do more than just touch on the high spots. Someone asked me tonight, "How old is radio, anyhow?" That opens up the subject that radio began twenty-five years ago or so when Marconi was successful in sending the code word "S" over the ether, across the ocean, registering the beginning from which developed point to point communication by code. However, it is only within the last ten years or so that we have been able to develop even from the standpoint of a laboratory success anything approaching the sending of the human voice, and the receiving of it again by telephone, which essentially is the basis of radio and broadcasting.

Ten years ago, the Department of Commerce for the first time gave radio a classification and credited it that year with sales amounting to $2,000,000. That meant radio sets, parts and accessories, batteries—$2,000,000 credited to it. Since that time and including the sales report for the year 1928, the sales of radio and parts and accessories have reached the enormous sum of $2,500,000,000; last year between $600,000,000 and $700,000,000 of radio sets, parts, accessories, and so on, entirely exclusive of radio broadcasting apparatus which of course comes under an entirely different heading.

I am told by those who are closely in touch with the development of great industries of this country that never in the history of American industry has there come through any new industry so rapidly, so solidly, and with such a present and increasing volume as radio. I am inclined to think that is due not to any particular miracle, but to the fact that it began with the common people. You know, someone said that the Lord must love the common people because he made so many of them; but I notice almost any industry that is predicated on a demand which started from the middle class had a pretty safe foundation on which to build, and you all know by experience, or by report at least, that the manufacture of radio receiving sets literally began in the attics and cellars of the country.

While men and boys, regardless of age, made of themselves more or less nuisances in the contraptions that were put together from which they managed to extract from the air all kinds of extraordinary noises (laughter) at the same time out of that there came something, and that something brought to the attention of the electrical industry the fact that here was that which was more than a toy, and had in it the elements of an industry itself.

Broadcasting, which is only one of the developments, of course, of radio, has had a tremendous development and a tremendous acceptance all along the line in that it has accommodated itself so wonderfully to the needs of the people themselves.

Broadcasting, as I said, commenced as a laboratory experiment. I suppose outside of the fundamentals which came from the electrical industry, we are probably indebted to the American Telephone and Telegraph Company for the tremendous experiment which resulted in Station WEAF and represented, I understand, an investment of nearly $1,000,000, designed to prove or disprove the fact that there was a new industry here in the making. When it came through and as an industry it had demonstrated itself, also demonstrated its acceptance not only to the people at large, but also to the great industrial firms of the country who were coming forward to sponsor programs, it then did the obvious thing—decided whether it should go into business along those lines or confine itself to line operation and sell Station WEAF.

It was at that logical moment that the National Broadcasting Company was formed. I never yet have spoken before a group of business men, and I have spoken before a good many groups in the last fourteen months, but that someone has asked me, "What is the National Broadcasting Company and who owns it?" The National Broadcasting Company was formed and is owned by the Radio Corporation of America, which owns 50 per cent; the General Electric Company, which owns 30 per cent, and the Westinghouse Electric and Manufacturing Company, which owns 20 per cent.

It was their money that made possible the development of programs, the things that have been done up to the present time. You see, an industry developing by leaps and bounds, registering its sales in hundreds of millions of dollars without any assured source from which programs could be obtained, was in the same relative position that the Victor Talking Machine Company would be in if they were not assured as to where they were going to obtain their records.

So, for the purpose primarily of stabilizing the industry, this organization was formed, and we were told to put the best programs on the air that money could buy. We spent $2,000,000 that first year in doing that thing with the result that with the development of the program idea, and the very necessary complement to the program idea, making possible the distribution of the program over as wide an area as possible which brought about the network system, there came a wider appreciation. There is no question as to the stability of the enterprise from the program standpoint, and an increased volume of sales.

I am always asked the question, "How about these networks; who owns them; who owns the stations?" The National Broadcasting Company owns just one station. That is WEAF, which it bought and for which it paid $1,000,000 to the American Telephone and Telegraph Company. The Radio Corporation of America made over to the National Broadcasting Company the operation of but not the ownership of Station WJZ. That is as far as ownership and control of stations go, as far as we are concerned, but in order that a program might be properly broadcast over a larger area than any one of our high-powered stations would cover, the idea was suggested and then developed whereby other stations throughout the country linked with our high-powered stations, WEAF or WJZ, by long-distance, especially engineered telephone wires, could take the program and rebroadcast it.

It could go to still another station and be rebroadcast until great areas, the entire country, could be covered with a simultaneous broadcast of a program. Those stations are stations that have been in existence many years. Many are owned by newspapers. They are owned by a variety of interests and the only connection we have with them is either a contractual or a gentlemen's agreement whereby they sell us certain periods on the air if we need them for our commercial programs, and they buy from us certain of our sustaining programs they would like to use. That is as far as they go, and the rest of the time is theirs to use as they please. We have no control either politically or financially in the stations themselves.

The development of the network system has made possible broadcasting as we now know it, and has also made practical the use of the sponsored program about which I will speak just a little later. Don't for a moment think that the development of the network system was an easy task. In the first place, we knew very little about it. Everything that has been done in a field like this has been done by experimentation, for here is an industry that has come in literally out of the blue sky without any signposts or markers, the trail entirely unblazed, and where what we learned had to be learned by trying and capitalizing our mistakes and failures, making out of them successes.

We found that ordinary long-distance telephone wires, while satisfactory, would not work out to the best purpose because they wouldn't carry a musical program—the range of tones necessary to reproduce music. So, gradually, especially engineered wires have taken the place of the wires we were leasing of the ordinary type from the American Telephone and Telegraph Company, until today practically all of the connections on each of the two networks, some sixty stations in total, are linked up with our system by especially engineered wires, used for and adapted to, and exclusively our property under an annual rental which in the year 1928 amounted to exactly $2,000,000 which we paid to the American Telephone and Telegraph Company for these wires.

There is one item which is quite a major item in what it costs to run a network system. Last year we paid out for talent, $5,000,000. We long since learned that if you were going to put programs on the air for the American people, you literally had to put on the best programs that money would buy. While our ability to do that satisfactorily has been due in a large measure to the cooperation of great national advertisers who in turn wanted to put on the best, yet today as crowded as it may seem to you that our lines are during certain of the evening hours with sponsored programs—less than forty per cent of the total time on the air at the present time is paid for by any other person or persons than ourselves.

As I say, it wasn't an easy thing to hook up these various network stations. It wasn't easy to attend to the mechanics of it. It isn't easy to hook together, as we do very frequently, twenty-five to forty stations and have them so completely and perfectly synchronized that nothing will happen that ought not to happen. The handling of a program as it goes from one point to another is very similar to the handling of a series of trains leaving a terminal and arranged as perfectly as human ingenuity can arrange it, to reach a certain destination.

There are junction points and literally there are switches. Where there are two programs going out, one has to be switched off to one direction, and the other to another. The time isn't so far in the background when we remember certain occasions where two programs going out, reaching the junction point, due either to lack of knowledge or inadvertence on the part of the party at the junction, got mixed so that a half of each program went to each destination.

I was in our station in Springfield a while ago and listened to one of those myself. The program had gone to Hartford, which was the junction point. Here one of the programs should have gone to Springfield and the other to Worcester. The young man in charge was either dreaming of an appointment or late for some date he already had made, or had some other reason. He just simply mixed the two programs. The next day there came out in the Boston Transcript this little account which I have always thought probably was predicated on that mistake. It is too good a thing not to give it to you. It was predicated on the fact that a young man recently married was sent down early one morning by his newly-made wife to get a recipe coming over the air. She wanted it for her early domestic science use. She said, "Go down and take off this recipe." The quotation says that he did his best. He got two stations, one of which was broadcasting the morning exercises, and the other the recipe.

. . . Mr. Arnold read the clipping. . . .

Mr. Arnold: That isn't as far fetched as it seems. Fortunately today, the perfection of mechanical appliances and the care and attention and, better than that, the knowing how to do things, has very largely eliminated that sort of thing from the air. In passing, I want to say here that the American people have been very patient and very understanding and very charitable in this development of radio.

It is a hard enough thing, as you gentlemen will witness, those of you who are so inclined and have had any experience, to get up an acceptable program for an organization like this, or an advertising club, or a community, or even if it is a State function, for a State. The other day I was speaking in Minneapolis, and I made the remark that doubtless in my audience there were many men who could prepare and get away with an acceptable program for Minneapolis, but I doubted if there were any man or group who could prepare a program acceptable to Minneapolis and St. Paul. (Laughter.) They agreed without discussion that I was right.

We have to get up programs for the entire country. I say "we" because of course the National Broadcasting Company was pioneering in that field. We have to get up programs for the entire country, and that means North and South and East and West. We have to reconcile Florida and Los Angeles. We have to remember that there is no such thing as the Mason and Dixon Line; not let Northern prejudice enter into Southern territory or vice versa—and at the same time to hold the audience. That is what I mean in saying that the American people have been very kind and cooperative.

I will venture this assertion, that we never would have been able to have created series of programs as acceptable as programs now are, had it not been that from the very start there came into our offices a tremendous volume of correspondence, critical, suggestive, one type and another, on which we have literally built our program system.

I was talking with a famous editor a short time ago, a man whose publication, if I should mention it, would be known to every one of you. I said, "Will you give me what in your opinion is the secret of your success as a publisher?"

After thinking he said, "If there is one thing that I would say was responsible for the success we have had, it is this: We have always tried to give our readers what they wanted, and not what we thought they ought to have."

It seems to me that is a pretty good basis on which to go. Those of you who are merchandise men, editors, publishers, whatever line you may be in—I will submit it to you that you won't go far wrong in your operations if you give your clientele, whoever they may be, what they want instead of too obviously trying to force on them what you think they ought to have.

That doesn't mean in our program making we have in any way catered unduly to choices and preferences that were not wide. Let me illustrate. In the early days of the program making of the telephone company, they were confronted with that wave of jazz which you know came in about five years ago and literally engulfed the entire country, and where those who were lovers of music wondered whether good music was ever going to come to the surface again. The executives of the company called a meeting and said, "We don't know whether it is quite the thing for us to have so much jazz on the air, but after all we will let the people decide."

So they sent 10,000 questionnaires to 10,000 people who, by their records, they knew had radio receiving sets, and asked them to indicate their preference for or against jazz. They did so, and the returns showed that 75 per cent voted for jazz. They said, "We will give them jazz." They didn't stop there. They called in the Program Department and said, "Here is the answer to the question of whether or not we have been right in giving the people jazz. They want it. What we want you to do for the next six months is to build in the finest type of quick-moving music. Get back into the old operas, draw out the things which you find are catchy, bright, interesting, have melody, have harmony. Build up underneath this jazz that type of thing."

The Program Department did. Exactly six months after that they sent out the same questionnaire to identically the same list with the result that only 5 per cent voted for jazz.

There is a type of educative work that is going on now. You don't know anything about it. Gradually the taste of this great volume of people—potentially 50,000,000 of them can listen in to their own receiving sets this moment, if for any reason we would mobilize the entire listening capacity—the choices, the tastes of those people are being gradually raised to a point which represents the best in the type of thing that they are listening to.

Music has been elevated so there is an appreciation today of grand opera, of the lesser operas; Victor Herbert and others have been brought to a point of appreciation, so that as a country we are a more opera-loving country, intelligently speaking, than ever before. I use the words "intelligently speaking" advisedly. Let me tell you a very natural mistake one big city advertiser made on the air not so long ago.

He determined as a distributor of Rolls-Royce that he would use his local station, which was a fine station, to give his customers and his potential customers or prospects, the best entertainment that money could buy. So he put on an hour of grand opera. It cost a lot of money. It was the first time that city had ever had grand opera to that extent. When it was over he complacently felt he probably had sent a program to every potential buyer of a Rolls-Royce.

At the conclusion of the program, which was dignified in its continuity, in every way comparable with the type of merchandise he was selling, he simply remarked that he had done this for certain specific reasons, and he would be glad to have letters of appreciation. In twenty-four hours he had 500 letters from the Italian quarter of that city. (Laughter.) He got his lovers of grand opera. He didn't hit any of the prospects for Rolls-Royces. He should have known better. We found that out long ago, but we paid the price of our knowledge.

The making of programs, which is basically the thing we are greatly interested in, has been no light undertaking. We are today sending out over our two networks, sixteen hours of programs over each network, thirty-two hours in total every day of the week, and every week in the year. Those programs, let me tell you, don't just happen. There seems to be a popular impression that things that go out on the air are gotten together more or less heterogenously—an orchestra plays some place, somebody opens a switch somewhere, and the result goes out on the air.

Well, there was a time when that was pretty nearly what happened, but today in our eight studios, which are busy from half past eight in the morning until midnight, there are rehearsals after rehearsals. There are auditions going on continually. There is the same degree of preparation in the arranging for a program to go out on the air that there is for the best and most finely conducted symphony or concert ever held in Carnegie Hall. Every major offering has to have its dress rehearsal on the afternoon of the evening in which it is to appear, while in the preparation of our sponsor programs the procedure is almost parallel to that that those of you who are advertising agents know to be the case in the preparation of a program of advertising for a specific period.

I have been asked to give you just roughly what it means to prepare a program for an advertiser. That program is practically his topic. A short time ago a great industrial account came to us and said, "We believe it would be to our advantage to go on the air." We have had people come to us with that remark where there was no more reason why they should go on the air than there would be that I should attempt to fly in this room. There was no basis for it. They were not ready for it. They were just looking for notoriety. Those people are discouraged by us.

Take a national advertiser who has a background of years of national advertising either in the trade field or in the general field where his product is distributed nationally, where he is well enough known so that if you will remind a person about him he will at least recognize him as representing a commodity he has heard of. Supposing that type of man comes to us and says, "We would like to go on the air, but we don't know how." Mind you, two years ago or some three years at the outside, nobody knew how. So it isn't an uncommon thing now. They come into conference with us. We say, "Bring your advertising manager, your agency man. Let us see first of all whether there is any reason why you should go on the air." They come in with the schedule of the advertising campaign projected say for the coming year. All of the exhibits are there, rough proofs, copy, what-not. The objective of the campaign is discussed. Out of it all, we determine whether or not broadcasting can come in helpfully or whether it would be a deterrent or detractant from the campaign itself.

The conspicuous successes on the air at the present time have been worked out where radio has obtained its greatest mission, which in my judgment is that of a supplementary or coordinating factor tying together, supplementing, drawing greater attention to programs of advertising either recently accomplished or being put through, the ordinary forms of media simultaneously with the broadcast.

Where programs have been worked out on that basis and where they have been made to fit in with the thought and purpose of the campaign, where each program on the air added something to or brought back to the hearer the remembrance of something he has seen, those are the programs that have worked through to the greatest acceptance.

Never think of the broadcast or the radio audience, the unseen audience, in terms of a mass audience. There are today about 12,000,000 families that have radio receiving sets. That we know by rather definite canvass. The Government tells us in its Census Department that the average family is 4.3 members to the family. There is where you have that potential enormous group that obviously never listen at any one time to any one program, but a large percentage of whom do. They are little family groups of four or five in the home, about the radio receiving set, getting the message.

For the first time in the history of advertising, the dream of every publisher, of every advertising man, of every advertising agent, has been realized. That is, finding a medium that goes directly into the home. It is the first time that a spoken message with an advertising motive back of it could go through walls, windows, roofs, without any obstruction and be picked up and delivered vocally in the American home.

This is what has brought about a tremendous reaction favorable to radio. We should always remember that this American people of ours is a wonderful people; they are subject to very definite reactions, and one of them that we have learned very definitely is this,—you can lead this great audience most anywhere but you can't drive them a single inch. This is why, in the preparation of advertising programs, especially commercial credits, we have bent backwards many times and have disappointed some advertisers by not allowing them to put as much advertising into their programs as they would like.

We have learned by experience that if you can put a large number of people under a pleasurable sense of obligation by giving them a type of program delivered into their own home with the sponsorship of a great company, without too much advertising other than the name of the product or its sponsorship, you create a feeling which is akin to the question, "What can we do to pay for this?"

Now, whether the objective (and I use the term "objective" advisedly for every real program that goes out has a definite objective) be good-will or the increase of the sale of the particular product, or whether it be something else, that is obtained in the majority of cases by the reaction of the audience to the sense of obligation which they could discharge in no other way than the obvious way of either expressing good-will by purchase or some other equivalent. That is just what has happened all up and down the line. If it were good taste or in my place to do it, I could give you individual examples. Perhaps that will come out in the questions.

Underneath all of this we have been faced continuously with the problem that up to a few months ago the industry itself didn't know what it had, where it was going. It had grown like Topsy, so fast that even the Associations themselves had no basic or fundamental figures. No one knew with any certainty how many radio sets there were and it was only by shrewd guessing or manipulation of figures that we knew how great the audience was.

A little less than a year ago it became one of the duties of my department to recommend to our directors that for the sake of the industry as well as the sake of having fundamental figures, we initiate a survey on a house-to-house basis without questionnaires by mail, in order to obtain some basic field. The result as you know was the start of the survey of radio broadcasting, the first survey conducted on that basis of the industry probably in the history of this country, and I think the world, and from which we have been able to ascertain with some degree of certainty what we have got and where we are going.

I am reminded of the little girl in the street car approached by the conductor. He was a little bit in doubt by her dress as to whether she was a little girl or a big girl dressed as a little girl. He said, "My young lady, how old are you?"

She said, "Mister, if you want my fare, here is my nickel, but my statistics I prefer to keep to myself." (Laughter.)

Our statistics will be kept to ourselves. That was the reason why. We found out from this house-to-house canvass which covered literally the homes east of the Rocky Mountain, these basic facts. Not to burden you with, but to show you the basis on which we are operating, I want to call your attention to a few of them.

We found there were nearly 12,000,000 radio receiving sets in the families of this country. The exact figure is 11,032,855. I will give yo general figures. Thirty per cent of these had been owned for two years and their quality as indicated not by makes but numbers of tubes, aver aged 5½ tubes each. Less than 4 per cent were crystal sets. The actua figure, I think, was 2.9. Then, after we had discovered relatively the number of families having sets and knowing the number of average members of the family, and the fact that the sets were good sets, and at the outside, none of them over two years old, we just asked them how long they listened in daily. The answer was four-fifths, or 80 per cent listened daily. We said, "How much do you listen?" The average was a little over two hours a day, or 850 hours a year that these families said of their volition they listened in.

Which were the most popular hours? Naturally, eight to ten with the noon and dinner hours carrying a large volume. Seventy-three per cent said they listened in equally every day in the week, but twenty-four per cent additional listened in more on Saturday and Sunday. That was a great surprise to all of us for somehow or other we had a popular idea that on Saturday night the world and his wife universally went somewhere else, except staying at home. That idea had become so ingrained into the consciousness not only of the radio manufacturer, but also of the advertiser, that the sale of any time on Saturday evening was almost impossible. That was all changed. Saturday and Sunday have the largest audiences of any two days of the week.

We were wondering whether these network programs were getting us anywhere or not. We were wondering whether the people of this country liked the network programs, or whether they didn't like them. That has been quite an interesting question. Seventy-four per cent said they preferred network programs. Eighty-one per cent said they preferred programs like Eveready, Damrosch, General Motors, Colliers, Maxwell, Seiberling, Ipana, and so on, choosing those types of programs.

Never in the wildest flights of fancy did we suppose that the preference of the American people would be overwhelmingly in favor of advertising programs as against national grand opera, great moments of history. Damrosch and others at that time were going on at great expense on our part as sponsor programs, but the word of the people said, "We prefer those to any programs you put on the air."

We were wondering what had become of the DX fellow, the one accountable for the silent night. You can remember when Chicago had a Monday night where anything outside of Chicago was cut out. It was a silent night so the DX fellow might get distant points. There were times when some of you fellows were in your sound-proof rooms down in the cellar, and along about three o'clock in the morning you got some noise that you thought was Los Angeles. You went upstairs two steps at a time, woke up your wife and said, "Dear, I've got Los

Angeles." But you never told us what she said when you woke her up.

That day is practically past. I don't know of any sections that have the silent night. We found that 73 per cent of this great number said they listened solely to one or two stations. In other words, the trend has been now for programs, not for distance, and they listen into those stations which give them the best assortment of programs—a perfectly natural thing.

Another thing that no one knew, that was fundamental, and that the whole industry was waiting for the answer to, was whether or not radio was used in the summer time. I mean the receiving sets. A little over a year and a half ago I was talking in Cleveland with a man who perhaps more than any other man has been responsible for the science of survey and investigation and marketing as related to advertising agency work. He said to me, "I have a client vitally interested in this radio industry, but he persists in telling me it is only an eight or nine-month industry, and I can't persuade him to advertise over six or eight months in the year. I think he is wrong, but I can't prove it."

I see no reason why a man shouldn't use his radio set in the summer as at any other time. We waited almost breathlessly for the word to come in in answer to this question, "How much, if at all, do you use your radio in the summer time?" Seventy-eight per cent, or 7,035,000 of this great group, said they used their radio as much or nearly as much in the summer time as any other time in the year. That word was sent all around.

The reaction on the trade was tremendous, and personally I think it had something to do with the fact that this year's sale of radio receiving sets has capped by 100,000,000 any of the previous years. Radio is now a twelve-month proposition from the manufacturing angle as well as that of the audience themselves.

Just to see how far off we were, we asked them to vote on the first, second, third and fourth choices of programs. This is what we have gotten. These answers are in the words of the families themselves, not in ours, which will account a little bit for a seeming duplication.

The first great group voted for musical programs. That means programs of general musical entertainment—what we call a musical hour or musical evening. The second great contingent voted for orchestral music. You have no idea how orchestral music has gripped this entire country. I am not talking about blasé New York. We get way off our balance if we judge by any great center, New York, Chicago, Philadelphia, or any other. This is the whole country. The second great division voted for orchestral music.

The third great preference was dance music. The homes of the country are literally dancing to music furnished them by radio. Those communities of which there are so many that in the aggregate they run into millions and millions away from great cities, away from great orchestras, from the facilities we have so commonly, voted dance music as third.

The fourth was speeches, talks and lectures.

That answers the question I have been asked so many times, "Why is there so much music on the air?" Did you ever realize that every great industry, every great division of advertising, has had to have a common denominator? And in this new art where we have been dependent entirely upon getting the message to the unseen audience through just one sense, the sense of hearing, that the great denominator of the human race since it first began in cave times has been music of some kind? And with music the string on which we could arrange the beads of the program, whether dramatic, whether educational, whether advertising, or what-not—it has given us the basis on which we could get an audience. You know, you might have the most wonderful program in the world, spend on it any amount of money, but unless you can hold your audience which can so easily dial away from you, it is all for nothing.

We have learned by sad experience that about as long as you can hold an audience on a talk proposition outside of a political address is seven and one-half minutes. But they have to be held over in case it is a dramatic presentation. Then there comes in the thread of music or bit of opera or something so suggestive or in touch with the program itself that people wait to see what the next thing is to be, and the next, and in that way are held to the program for the half hour or the hour period. That is why so many of our programs have so much in the way of quick action. We won't let the audience get away. They are anticipating, wondering, guessing, what the next thing is to be.

That is the way in which the audiences which nightly listen to great programs of major import are kept and every program is made with that point in view, just as definitely as you advertising men, by the use of typography, of color work, color combination, enthralling copy, hold and get and retain the attention of your reader audience. We are just learning the technique of this sort of thing. The psychology is the most wonderful study in the world. The main thing is not to get your audience, but to hold them.

One of the last public utterances of my very dear and lamented friend, Tom Logan, was made at the Detroit Convention, where he gave the main address at the departmental on radio. He said, "From my investigation as well as my personal experience in handling some of the most important accounts on the air and with my knowledge of the audience, and the potentialities in number, I am making, without any reservations, this statement—A first night audience for a major program worked out carefully in advance and properly sold in advance to the country, a first night audience is easily 10,000,000 people. Those 10,000,000 people have to be so pleased with your first program that they sit with you on the evenings that follow."

It was on that basis that the great General Motors program, which when it went on was a great outstanding program of that period, was made. General Motors came to us practically with this proposition: "We have had a series of wonderful successes for a year. The American people have paid to us large sums of money. Our profits have been more than satisfactory. We would like in some way to express our appreciation of this favorable reaction without incurring undue obligation. Will you work out for us a series of fifty-two programs which will represent the best that money can buy in music, dramatic presentation, or whatever you think should be the thing for us to use."

With that commission, there have been made a series of General Motors programs which in their class stand head and shoulders above the programs of that period and for what purpose? The showing of appreciation and the obtaining of good-will. The reaction has been something entirely unprecedented, to say nothing of satisfactory.

We don't know where the thing is going to end. The reaction from the commercial side has been astonishing. It has been more than satisfactory. When I came with the National Broadcasting Company when it was formed in November, 1926, there were two months of our own to go and eight months prior to that of American Telephone and Telegraph Company, and the total amount of time sold on the air during that twelve-month period was $1,250,000 worth of time. At the end of the year 1927 after we had learned a little about the technique and the approach from a standpoint of programs sold to advertisers sponsored by them, our sales were about $3,000,000. This year just closing we billed for time along to the national advertisers through their agencies, between $6,000,000 and $7,000,000 worth of time, on which we have paid to the agents of this country $1,000,000 in cash. That is the record of two years.

That has come not by any magic or supersalesmanship because nobody knew enough about this to sell it with any more than just ordinary intelligence. It has come as a tremendous reaction, a tremendous acceptance on the part of big business toward a great, new, wonderful thing, which was doing in its field wonderful things.

Best of all, it has come into the picture as I like to think of it, as the fourth dimension of advertising, adding to and not taking from other forms of media. I believe that in and of itself, broadcast advertising is an advertising medium for introductory and selling purposes only as it helps as a coordinating factor in making more profitable the advertising already either historically or actually in operation, or in creating good-will and general acceptance for a product already known by the people themselves. As such, it has done some very, very wonderful things.

In a rather busy life, twenty-five years of which have been devoted exclusively to the advertising business, I have seen practically the great development of this art of advertising. I have been privileged to view it from the standpoint of the advertising manager, the publisher, the agent, and now I have been called to have some part in this great thing we call radio. In that period I have never known of any new medium to come into view, and in that length of time to obtain national and international acceptance, demonstrated by the actual cash value, as has been the case with radio broadcast advertising.

That in and of itself is significant. I don't know just where our final place is going to be in the picture. There is as much ahead of us, I know, as there has been already accomplished as a matter of brief history. I never go away on a trip, but what I come back with the question, "What has happened?" and something has always happened.

I thought it would be safe to go to Boston last week to address a group of agents. While I was there there came on the air the first international broadcast, and London was speaking. Those who happened to be listening in on that network, that broadcast, the Bok Sanctuary program with President Coolidge giving the address, had the treat that nobody expected they would have, and that was to hear the closing program of the British Broadcasting Company in London.

I am going to the Pacific Coast on Saturday, to be gone eight weeks. When I come back, the Lord only knows what will have happened. We may have been having television, while I was away, although that perhaps is yet still a far cry. There is so continually this terrific change progressively along the line of development that the books we write today are obsolete tomorrow. The speed of this thing is characteristic of the radio energy itself.

I was showing a woman through our studio a year ago, right after Graham McNamee broadcast the football game from the Pasadena

Rose Bowl. It was the first time any athletic event had been broadcast across the continent. We were in the plant room. She was looking at the switchboard. I explained when he was speaking at the microphone his voice came to our switchboard and was redistributed back to Pasadena. She said, "What an awful waste of time." I explained the speed of radio was seven times around the globe in a second. That didn't seem to register. I said, "Graham McNamee spoke there, and we got his voice electrically here before they heard him in the Rose Bowl." I think she is studying over that now. (Laughter.)

On the night that the election returns were coming in I was naturally behind the scenes. It was thought advisable to keep the lines open between our studios at Palo Alto in case Hoover wanted to speak. To do that we routed to Palo Alto and back the same announcement going from our studio for local consumption. There were two loud speakers side by side in our plant room, one taking the broadcast from the booth about six feet away, and the other taking the broadcast to Palo Alto and back, 6,000 miles, and you couldn't tell the difference between the two. That is the speed of the thing.

The first time that President Coolidge broadcast on a network covering the country, his voice not only was heard all over this country literally, and it is estimated that 30,000,000 people heard him at that time, but was taken up, thrown across the Atlantic, caught by the British Broadcasting Company, stepped up, rebroadcast, Continental Europe had it, South America obtained it simultaneously with our broadcast—literally the entire civilized world heard him. Then if we had chosen to have done it and wanted to play a little practical joke, we could have brought his voice straight back again and laid it right beside him. It is all done like the snap of your fingers.

Even the Radio Corporation of America and their engineers weren't quite sure how quick it was. So one summer day they rigged up a little experimental table over at Rocky Point a few miles from where my summer home is. They said, "The longest distance that we can get air and wire lines is to Warsaw, Poland. Let's clear the wires to Poland and back again. Here we will have the sending key and beside it the receiving lamp which will be a flash. We will see how nearly instantaneous it is."

A little group gathered around the table. Everything was cleared. The engineer pressed the button; as far as the eye could see there was an instantaneous flash. That current had travelled all that distance, 8,000 miles.

You see, when you eliminate time and space you have something the like of which man never had before, and the future of which no man dares to prophesy. After all, the greatest kick I get out of this as I go over the country, and I am just completing 50,000 miles of this sort of thing, is the human side of it. Do you realize the hundreds of thousands of homes that have literally been made over by radio? Do you realize there are sections in the Saskatchewan where for years they never have been able to get settlers to go to live because of the terrible winter, where in the solitude they literally went mad? Do you realize there is no ranch so remote anywhere in the territory of the United States but that they can get the same programs you are getting here every night in New York? Do you realize that there is something about this radio transmission that makes it possible for people who have been stone deaf for years to listen in and hear the most beautiful musical programs? We don't know why, but it is so.

Do you realize that the greatest political campaign ever waged nationally by this or any other nation was practically waged over the radio this last fall, and for the first time millions of people listened in the quiet of their homes to the arguments and presentation of both parties, and formed the individual opinion without the red light or the spread eagle or the political orator?

Do you realize that educationally there is going into the millions of homes the first real education beyond that of the public school that comes to people in the way of lectures, of travel talks, of various other forms of education, while there are hundreds of thousands of homes that every Sunday rely upon the religious services as the only means of obtaining anything of religious uplift during the week? It is estimated that Dr. Cadman every Sunday speaks to from 10,000,000 to 20,000,000 people. Probably the audiences of others are equally as large. The young people have their conferences of their own where they listen in. So there is that side of it.

The expressions that come from these people, a million letters last year, into our National Broadcasting Company organization are pathetic. Some of them are too intimate to read, but all of them just breathing the note of appreciation.

I should like to share with you two or three of those letters which are so human that they can't be printed, of a type that reflect the human equation so completely that you will get just a little idea of what I mean.

One was from a tired mother in New Jersey. That is the state of tired mothers, as far as our correspondence shows. I live there myself, so I can take the joke of this on me. Here was a letter never written with any thought of being humorous, written from the very heart and soul of a woman who was so appreciative for the service rendered. It was directed to one of our grand opera stars. We didn't know whether to show it to the star or not. You never know whether an opera singer has a sense of humor or not. They are quite temperamental. You will see why we weren't quite sure whether to show it or not.

. . . Mr. Arnold read the letter, which he instructed the reporter to omit. . . .

Mr. Arnold: That opera singer had a sense of humor. She said she was glad to know for once at least her music served some practical purpose. (Laughter.)

Here is a letter that goes to prove that radio is used in the summer time.

. . . Mr. Arnold read the letter. . . .

Mr. Arnold: When the human soul reaches the limit of expression and bubbles over, it resolves itself into poetry. We have more than you can put in a half dozen bushel baskets, and most of it belongs there. Here is a little poem called "The Lost Chord," and I never yet read it to a gathering of men out of town, but what some man has come up and said, "I know who wrote that," and given me his name. And he didn't write it, so I don't know how many have written on "The Lost Chord."

. . . Mr. Arnold read the poem. . . .

Mr. Arnold: I want to call your attention to the international possibilities of radio. I approach this with a great deal of diffidence and a great deal of hesitation because as yet it is literally all in the air, but with a power so pronounced as this, bringing together all the nations of the world within the reach of a single human voice, just think what that would mean in any great national or international calamity. The leading voice of any country could literally mobilize its citizenship overnight, and instead of reading they could hear the voice of the leader either advising or counseling.

Those who are great international students have told me if we had radio in its present form of efficiency fourteen years ago when the clouds of the Great War were gathering, that great catastrophe never would have been allowed to go on. Whether that be so or not, it is interesting to know that international radio is having the attention of the great international thinkers.

Some of you may have read Premier Baldwin's speech in Guild Hall last November, that historic occasion when the Premier said something which is worth while and stands for international utterance. In discussing great international themes including war, this is what he said:

> I believe that wireless, common or garden wireless, will be one of the greatest bonds between the common peoples of the whole world. We in England used to regard everyone who lived across the seas as a savage. Now, when most people realize that in whatever country man lives, he is a man like himself with a family and family life, with a wireless set, services on Sunday, dancing in the evening, and lectures—then war presents a very different aspect.

I believe that we are making history. We are so close to it we hardly realize it, but we all of us are helping to develop something which will result in being one of the greatest forces that has ever come into our social, economic and international life.

In closing, I am going to give you a tribute that came in the mail the other day from a woman who felt the least she could do was to voice her tribute to radio. It is so nearly the universal tribute, that I leave it with you. She says:

> I am a gift from the world's laboratories; I am a fruit of the patience and wisdom of the scientist; I am an aid from centers of refinement; I travel in the skies, over rivers and mountains; I reach the lonely, the sick and those who long for uplift; I bring them good cheer, education and recreation; I am the world's newest form of entertainment; its most modern method of communication; its greatest medium for unifying, uplifting forces. I am radio. (Applause.)

IV

PROMOTIONAL SPEECHES

THE SEVEN DOORS TO THE MIND AND HOW TO OPEN THEM[1]

VICTOR ALVIN KETCHAM

The following address by Victor Alvin Ketcham, Professor of Public Speaking in the Ohio State University, has been delivered before business organizations in New York City, Boston, Pittsburgh, Detroit, St. Louis, and other cities. It is a part of Lectures I and II of his series of five one-hour lectures and demonstrations on Effective Speaking in Business which have been delivered before the executives of many firms, including Westinghouse, Standard Oil, General Electric, United States Rubber, United Shoe Machinery, Radio Corporation, and hundreds of other industrial and commercial organizations.

Did you ever come back from an unsuccessful conference and say, "Well, I told him all about it but I could not make him see it!"

Or, perhaps you have had an idea which you wanted to have adopted but you have been forced to say after months of effort, "I have done my best to get them to see the point but they simply will not see it!"

Now, there are seven ways by which you can make other people "see" your point and by which you can get them to understand and act on your ideas. I call these ways "The Seven Doors to the Mind."

The first door is one with which you are very familiar. It is The Visual, or things seen. You see an automobile passing along the street. It is present to your sight for only a moment. But because of the image formed in your mind you can see that automobile tomorrow or next week and because of the picture in your mind you can describe it to a friend.

Every person with whom you talk has in his mind a multitude of visual images. If you want him to "see" your point or understand you clearly, you must use these images which are fixed in his mind.

The second door to the mind is The Auditory, or things heard,—the roar of thunder or the voice of a child. Some people are impressed more by what they hear than by what they see. In other words, some people have large auditory doors and small visual doors, while others have large visual doors and small auditory doors.

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Two of my neighbors saw an automobile accident. One of them told me about it. He said, "I saw that old car come swaying down the road and when it hit that telephone pole it broke the pole in two places. It broke it off at the top of the ground and it broke into two pieces about ten feet above the ground. The top of the pole remained attached to the wires and swayed back and forth over the wreck for a long time."

Knowing that the man who was talking had a large visual door, which can be seen from his description of the wreck, and wishing to test his auditory door, I said, "Such a bad wreck as that must have made a very loud crash!" "Yes," he replied, "it did, and the front axle of the car was bent so that the front wheels stood right together!" I could get no response to my suggestion about *how the wreck sounded*. The speaker insisted on telling me *how the wreck looked*. He was impressed by what he *had seen* but he was not impressed by what he *had heard*.

Knowing that another neighbor of mine[1] who had witnessed the same accident, has a large auditory door and a small visual door, I went to his home that evening to find out how he would tell me about the wreck. During my social call I mentioned the accident. The reaction to my suggestion was immediate and spontaneous. "Yes, indeed," he said, "I heard that old car come roaring down the road and when it hit that telephone pole I never heard such a crash in my life. It sounded as though a whole van load of furniture had been dumped right into the gutter."

In vivid language he told me about the wreck in terms of auditory imagery. He explained in detail what he had heard. He told me what the man who was pinned under the wreckage, and who later died from his injuries, had said. From the description by my neighbor with the large visual door, I did not know that he had said anything.

I hope that you are beginning to understand that talking successfully to one of these men is a very different problem from talking successfully to the other. To speak in radio terms, one has a receiving-set very different in construction and power from that possessed by the other.

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[1] NOTE: The reader should be very glad not to live in my neighborhood. I have to have material to work on, to observe and with which to experiment. My neighbors, being closest at hand, suffer the most. It is quite a task to be a neighbor of mine.

You must know how to operate both types in order to compel each one to "tune in" on your message.

The man with the large visual door and the small auditory door will "see" your point if you show him diagrams, figures, plans, etc. and if you describe "how things look" to him. The man with the small visual door and the large auditory door is impressed by what he hears and by his accumulated store of auditory images. Tell him about the silent, smooth operation of a machine or get his attention by anything in which auditory imagery plays an important part.

We are told that we must go along with the hearer—talk in his language. There are many things to learn about doing this successfully. One of them is to listen to what the hearer says, find out how he likes to receive his information and make him "see" the point we want him to "see" by telling it to him in the way he wants to receive it.

The third door to the mind is The Motor. Basically, this door rests on sensations of muscular effort—running to catch a train. It involves motion and the relations of things. You may have attended, as I did, an elementary school in which Friday afternoon brought the inevitable declamation. Do you remember the small boy who could not commit to memory his recitation by sitting at his desk and looking at his book? When he got up to face the school he could not remember how the words looked on the page. He could not recall the ideas which the words expressed. He solved his difficulty by taking the book home at night and having his father or mother read the selection to him many times. Then he could get up before the school and recite it glibly. His visual door was small but his auditory door was large and he remembered what was read to him. Perhaps you have known children who could read whole pages in a story-book without being able to tell one word from another. They remembered accurately from having had the stories read to them many times.

You may recall another boy in the same school who had an altogether different way of "getting his piece." He would take the book home, go off by himself somewhere, and read the selection aloud many times. When he stood on the platform at school and recited, he was usually identified by the fact that he shouted at the top of his voice. He had a large motor door and he was aided in his mental processes by the succession of muscular efforts necessary to pronounce the words. This boy has grown into a man. You visit his place of business. During his conversation he has occasion to use the telephone. The chances are that before placing the call he will mumble the number to himself in an undertone. He does this because the habit of operating mentally through motor imagery remains with him through life. Speech experiments also show that he is the man who likes to have matters presented to him in an orderly manner. In talking to him it is a good plan to have your subject divided into "Firstly," "Secondly," "Thirdly," etc. He is the man who, after you have shown him all your diagrams and have emphasized the details with auditory imagery, seems to hold no favorable impression of your proposition. Finally, in despair you again state your proposition somewhat as follows: "Now, Mr. Jones, the first thing to be done is ——; the second thing to do is ——; and the third thing is the result we want which is ——." Mr. Jones usually responds, "Oh, I see that now. Why didn't you tell me that in the first place!"

Have you ever had your hearer suddenly agree with you for no apparent reason whatever? You had told him your story in the way he wanted to receive it. You conformed to his mental habits in gaining information. You stumbled into the right door to his mind. This result which you achieve by accident on a few occasions, you should learn to achieve in a systematic way on all occasions.

The fourth door to the mind is The Tactile,—cutaneous sensations—a worm crawling on the back of your hand—the fine, smooth feel of a rich piece of velvet. Tactile sensations are very powerful in inducing action. Some authorities claim that the construction of the brain is such that the volitional functions are located adjacent to the seat of the tactile sensations and that the connection between the two is very close. However this may be, all tactile sensations are powerful incentives to action.

Were you ever embarrassed? Have you on some occasion said exactly the wrong thing at the right time? Do you remember how you could feel the warm red mounting your features and you were powerless to stop it? If your embarrassment was acute, do you recall that you had a suspicion that the perspiration was standing out on your forehead, and on your upper lip, too? You remember, also, that you would have done anything within your power to have recalled that unfortunate remark which caused your embarrassment. But words are inexorable! What is said, is said forever. No regret and no apology can blot it out.

In talking to the person with a large tactile door, all suggestions of cutaneous sensations have a powerful influence. This is the reason you can shame some people into doing what you want them to do. Beware of trying this method, however, with the person who has a small tactile door. You will get only resentment for your efforts.

The fifth door to the mind is The Olfactory,—things smelled; for example, apple blossoms on the old farm in May, or burnt gasoline.

The sixth door to the mind is The Gustatory,—things tasted,—Penobscot River salmon or ginger ale.

The seventh door to the mind is The Thermic, or sensations of heat and cold. The comfort of an open wood fire on a cold December night is a good example of an appeal through this door. I once saw a finely colored poster in the window of a bank. It showed an old couple seated comfortably before an open wood fireplace. The fire glowed warmly. The drifted snow was piled against the window panes. Through the window one caught a glimpse of the snowy landscape. Within the room was a suggestion of comfort. Beneath the picture was this statement: "When winter comes in life you want to sit by the fireside of comfort. Be thrifty! Open a savings account to-day!" This was an appeal to save money put into the mind of the observer through the thermic door.

These are the seven doors to the mind—The Visual, The Auditory, The Motor, The Tactile, The Olfactory, The Gustatory, The Thermic. They exist in different combinations in different people. People differ as much in their ability to understand and appreciate what you tell them as they differ in personal appearance. Look at any group of people. Each normal person has two eyes, a nose and a mouth. But these features are set in different ways, sizes and proportions so that each person looks very different from every other person in the group. It is the same way with their capacity to understand and appreciate what you tell them. One person is impressed most by visual, motor and thermic images. Another likes to receive his information through the auditory, tactile and gustatory doors. Still another may receive largely through the visual and the gustatory. By talking to each individual and observing his reaction to your remarks (keeping this classification in mind) you are able to find out how he wants you to tell your story or make your point. In talking to a group of people all the doors should be opened. Some have one combination and some have another.

Moreover, in order to get your whole idea completely into the mind of one hearer all the doors should be opened for all persons receive something through each door. In the case of any one individual, some doors are larger than others and the most time and effort should be used in putting the message in through these large doors. In other words we should state the proposition in the way the hearer wants to receive it or in the way in which he is accustomed to get his information and impressions. To understand and to be able to recognize these seven doors is to use one of the methods of talking effectively.

Let us now consider how to open these seven doors.

Deland, in his "Imagination in Business" tells of observing two shine parlors at a busy street intersection on a Saturday afternoon. In front of each was a young man urging the passerby to come in and get a shine. One of them was getting a great many customers—the chairs of his stand were usually full. The other, although he had the same equipment as his competitor, was not doing very much business although he was calling diligently, "Get your shine here! Get your shine here!" He was failing because such a statement opens up none of the seven doors to the mind. His competitor, who was getting most of the business, was using exactly the same number of words but he was opening up some of the doors to the mind by what he said. He was saying to that Saturday afternoon crowd, "Get your Sunday shine! Get your Sunday shine!"

He told all that the other man told and in addition he put his statement into the mind of the hearer through at least two of the seven doors. His statement at once caused certain visual images to form in the mind of the passerby who heard or listened to what he said. The hearer would say to himself, "That is right. Tomorrow is Sunday, and I will need an extra good shine!" Then there would flit through his mind visual images of Sunday visitors at his home, of going to the home of a friend for dinner and other visual images of like character.

The statement also opened up the tactile door. The passerby was reminded that he might be embarrassed if he did not have a good shine on Sunday. This might take any one of a thousand forms in the mind of the hearer. If he were a business man he might recall that he had a very important engagement early Monday morning. He would want his personal appearance to be at its best. He would be embarrassed if he did not have a good shine.

I recall hearing a very successful real estate dealer close the sale of a suburban residence to a man who had lived for years in a city apartment. His closing statement was: "Don't gamble with your savings. You owe it to your family and to yourself to buy a home out along the country roadside where the air is pure and sweet!"

This statement puts the appeal of the speaker into the mind of the hearer through at least four of the seven doors. First, it opens the visual door. You have often seen fine country homes which you admire very much. You would think of these if the statement quoted was made to you when you were considering the purchase of a country residence. Second, it opens the auditory door. It should be remembered that this man was a city apartment dweller. The suggestion of the peace and quiet "out along the country roadside" opened the auditory door in a very pleasing way. Third, it opens the olfactory door by the statement "where the air is pure—." Fourth, the gustatory door is opened by the concluding words, "—and sweet!" Every city dweller has pleasant olfactory and gustatory images in his mind of the invigorating freshness of country air. Because this real estate dealer is able to open the doors to the mind and drive his message deep into the consciousness of his hearer, he is a very successful man.

The following story is told about Henry Ford's genius in mastering difficult situations. Back in the early days of the Ford Motor Company, a pay day came and there was no money. Mr. Ford had expected to get a check from his Chicago dealer that morning to meet the pay roll. Instead of the check, he received notice of the bankruptcy of the Chicago firm and he had no other source from which to get the money. He decided to ask his workmen to let him defer payment until the following Saturday.

When the men came for their pay envelopes they found Mr. Ford standing in the door. He told them the exact situation. He explained the difficulty of making and selling automobiles at that time. He pointed out the distrust the public felt for the "horseless carriage." Then he reminded them of the two firms which had recently failed in the automobile business and emphasized the fact that nobody was paying the grocery bill or the rent or the installment on the home from any money they received from the plants which were closed. Then he painted a brief word-picture of the time that would come when the highways would be crowded with motor vehicles. In conclusion, he is said to have made this statement: "Now, men, we can pull through all right if you will help out now. You know the kind of car we make, for you make it. You know the price. You know what the new one did that I showed you yesterday. We can get through the winter on our unfinished orders even if we never get that Chicago check. Next year we will have a big business and we'll all have good jobs. But it all depends on you. If you quit now, we are done for. What about it, —will you stay?"

This statement of the case secured the result. It conforms to the principles which we are discussing. There are many points of excellence in handling this situation which we must pass over now. The point in which we are primarily interested is that Mr. Ford put his ideas into the minds of his hearers through all of the seven doors.

He opens the visual door by pointing to the two factories which are closed, by referring to the Ford car which was a familiar object to them and by reminding them of the demonstration of the car's good points which he had called them out of the plant to witness the day before.

The olfactory and gustatory doors are opened by reminding them that they should keep their jobs to be able to pay the groceryman for food. He opens the auditory, motor, tactile and thermic doors with such statements as, "You know the kind of car we make, for you make it." Such statements bring up a whole flood of imagery,—the whir and hum of machinery, the hard hours of labor with its tactile and cutaneous sensations, the cold feel of the metals, the heat of the forges. All of these impressions and images crowded each other in the minds of the hearers as he talked. Think what would have been the result had he made a plea for loyalty as other business men have often done under similar circumstances with failure as a result. Very often the whole difference between success and failure lies in the way facts are stated. We cannot learn too much about the methods used by successful men.

The successful speaker must think of many things. One of the most important is that he think to state his facts in such a way that the doors of the mind are opened. On one of those stressful occasions during the great war when it seemed that the Germans would surely drive through the French lines, a French officer put his plea to his men in this form: "Frenchmen, you are fighting for your native land!" There is nothing striking about this statement. It has been used by generals in appealing to their soldiers from time immemorial. Out of the stress and terror of the moment this officer thought to put his age-old appeal in through some of the doors to the mind. He said it this way: "Frenchmen, you are fighting for your native land,—the laughing, fertile land,—for your fields and meadows,—for the mother who waits to welcome you! You are fighting for your village belfry, for your roofs of slate and tile!" In the mind of every soldier within the sound of his voice arose an image of the little French village in which he lived, of his waiting mother, of the church belfry and of the roofs of slate and tile that gleamed in the sunlight. There they held the Germans because their leader knew how to put his message through some of the seven doors to the mind.

Daniel Webster was the master user of most of the devices of effective speaking. Perhaps you remember reading of the White murder trial—back in the days when a murder was a serious matter—and you may recall that Daniel Webster was brought into the case by the State in the hope that justice might prevail. One of the points that Webster emphasized before the jury was that the evidence showed that the Knapp brothers had been paid a price for murdering Captain Joseph White. Instead of becoming red in the face and shouting this fact at the top of his voice, Webster carefully opened several doors to the mind. He reviewed the facts showing that the accused had been paid for the crime and then said: "Gentlemen of the Jury, this was the weighing of money against life,—the counting out of so many pieces of silver against so many drops of the victim's blood!"

Here is imagery opening up the doors to the mind! Had Webster merely said they were paid, there would be no imagery. When someone tells you that a person was paid for doing something, no image flashes in your mind. But when you are told that the money was counted out to them in a specific way, the visual door is opened. The action of counting out the money is motor imagery. You appreciate the action and the circumstances as they are described and the facts impress themselves upon your mind.

In telling the details of how the criminals were paid, Webster specifically states that so many pieces of silver were counted out to them,—not paper money, but silver coins which clink as they are counted out one at a time on the hard surface of a table, and by this means the auditory door is opened. Furthermore, the large silver coins, a common medium of exchange in Webster's time, have a hard cold feel and by this means the tactile and thermic doors are also opened. The message is driven deep into the mind of the hearer.

But, you say, these are very fine points. Yes, indeed, they are fine points,—and in these fine points lie all the difference between failure and success in speaking.

To the uninitiated, two statements of a fact may appear to be about the same. The student of effective speech sees in them a difference as great as the difference between light and darkness, and because he sees these differences he is able to forecast the result of his statements and to state what he has to say so as to achieve success.

Some time ago a friend and myself were in the Chicago Art Museum. We were much impressed by one of the paintings in a special exhibit. My recollection is that the title of the picture was "A March Day." You could see the white clouds as they were driven across the blue March sky. You could see the bare limbs of the trees swaying in the March winds. On the ground, the snow was melting. It looked as though you would get your shoes muddy if you walked out toward the trees. It was truly a wonderful painting to anyone who loves the great out-of-doors.

We found out that the last price paid for that painting was $30,000. My friend wanted a copy of it. He arranged with an advanced student in the art institute to make a copy. The price was $30. I saw the copy several months later at my friend's home. He had not hung it, but he had it. I recognized it at once. There were the same white clouds in the blue sky, but these clouds were not driving across the sky. They looked dull, flat and lifeless. There were the same number and size of trees as in the original painting. But these trees were not swaying in the March winds. They looked rather awkwardly bent. On the ground some snow was represented, but by no stretch of the imagination could you conceive of it as melting snow.

Such is the delicate difference between a thing that is art and worth in the markets of the world $30,000 and a thing that is not art and worth to the sight-unseen purchaser $30. One unlearned in art cannot analyze the difference and tell why but it requires no great artistic ability to know that you admire one picture and that you do not admire the other. Such, too, is the delicate difference between a fact that is stated in such a way that the hearer is impressed by it and acts upon it and the same fact stated in such a way that little attention is paid to it, and no result is achieved by it.

I want you to be able to see and appreciate these fine differences. Just as the trained artist sees differences in detail in a picture which you and I do not see but which make us like or dislike the picture, so we must learn to know the differences in what we say which make others like or dislike our ideas.

One day a business acquaintance called me and asked me to go to the State supreme court session the following morning. He said he wanted me to hear a "little, dried-up country lawyer from a small town south of the city." The reason he wanted me to hear him was that, as he said, "That man can make facts so plain that they stand out like the five fingers on your hand." He wanted me to find out the secret of this man's ability. To anyone who has not given the right kind of study to this problem, it is somewhat of a mystery if one is able to get others to see and act upon his ideas. As a matter of fact there is no secret or mystery about it. It is the application of certain methods of effective talking one of which we are now considering, and the exercise of that common-sense which any normal person ought to possess.

When I arrived at the court room, I found that the case was a railroad damage suit. It seemed that four or five years before this time, an old lady had alighted from the train at the village where this attorney lived and because the railroad company had not kept the light on the station platform in good condition, it had been blown out by the storm on this dark, wintry night. The old lady had wandered off of the end of the platform in the darkness and had been seriously hurt. She sued the railroad company, the case had gone up and down through the courts and was now before the supreme court for hearing on the printed record, a copy of which was before each judge.

The court allowed each side an hour in which to present its case. The attorney for the railroad occupied his hour in telling the court what the law was. He cited all the precedents. I never knew before that there were so many cases of old ladies walking off of station platforms and getting hurt as that attorney was able to cite.

The speaker whom I had come to hear began his argument by telling the court that he thought the judges knew more about the law than he did. He said, "If I can get you to see just how this accident happened, as it is set forth in the printed record of the case, I have faith that you will know how to apply the law justly to the case."

The speaker took his entire hour to tell just how the accident occurred. It took him one hour to tell about an accident which occupied about a minute and a half of time, but so well did he tell it, so thoroughly did he open up each of the seven doors to the mind and so completely did he put his message into each one of them, that every person in that court room was held spellbound. The judges, in their dignified black robes, leaned out over the bench to catch every word as he told of that dark, stormy, wintry night with its blinding sleet and rain.

You could see the dim outlines of that little country station as the train pulled in. You could smell the damp of the river fog as it came up around that station and made the darkness mystifying and confusing, particularly to an old person. You could feel the sharp, icy sting of the sleet as the violence of the storm drove it into the face of the frail old lady when she stepped down from the last step of the coach and stood timidly waiting for the train to pull out. You could hear the sharp puff of the locomotive and the creaking of the old wooden coaches (He made it plain that their equipment was old and worn out) as the train pulled out and the lights from the coach windows passed along the station platform and left it in complete darkness because the railroad had not kept the light on the platform in good condition.

Then the speaker made every person walk, in imagination, with the frail old lady, over the ice covered, uneven boards of the old station platform. When she fell off the end, it came with a sense of personal physical pain to every person present. She fell on her face in a pile of cinders and the taste of old ashes was in the mouth and their acrid smell in the nostrils of every person present.

Did the speaker win his case? He did! In talking with one of the judges I commented upon some of the technical points of law involved. He hastened to interrupt me. "Surely," he said, "there were many technical points, but two facts were very plain: first, the old lady was hurt. They all agreed to that. Second, it was very plainly the railroad company's fault that she was hurt."

After the decision was made, I congratulated the old gentleman upon conforming so admirably to one of the principles which I thought I had worked out and applied in recent years for the use of those who want to get more results from their talking. I thought he was almost vicious in his attitude as he said, "It has taken me a whole lifetime of hard, bitter failure to find out just a few common-sense methods about how to tell facts and ideas, which someone ought to have told me in the beginning of my career. Woe unto him who will not profit by precept and example, for the sands in life's hour-glass flow silently and steadily. There is a time limit on every achievement!"

WHICH KNEW NOT JOSEPH [1]

BRUCE BARTON

Mr. Barton, President of Batten, Barton, Durstine and Osborn, Advertising, New York, delivered this speech at the meeting of the Public Relations Section of the National Electric Light Association, New York, 1923.

There are two stories—and neither of them is new—which I desire to tell you, because they have a direct application to everyone's business. The first concerns a member of my profession, an advertising man, who was in the employ of a circus. It was his function to precede the circus into various communities, distribute tickets to the editor, put up on the barn pictures of the bearded lady and the man-eating snakes, and finally to get in touch with the proprietor of some store and persuade him to purchase the space on either side of the elephant for his advertisement in the parade.

Coming one day to a crossroads town, our friend found that there was only one store. The proprietor did not receive him enthusiastically. "Why should I advertise?" he demanded. "I have been here for twenty years. There isn't a man, woman or child around these parts that doesn't know where I am and what I sell." The advertising man answered very promptly (because in our business if we hesitate we are lost), and he said to the proprietor, pointing across the street, "What is that building over there?" The proprietor answered, "That is the Methodist Episcopal Church." The advertising man said, "How long has that been there?" The proprietor said, "Oh, I don't know; seventy-five years probably." *"And yet,"* exclaimed the advertising man, *"they ring the church bell every Sunday morning."*

My second story has also a religious flavor. It relates to a gentleman named Joseph, who is now deceased.

Those of you who were brought up on the Bible may have found there some account of his very remarkable business career. Those of you who have not read that book may have heard of Joseph through the works of Rudyard Kipling.

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[1] By permission of the author. Reprinted from "Business and Professional Speaking," Sandford and Yeager, 1929.

Said Mr. Kipling:

> Who shall doubt the secret hid
> Under Cheops' pyramid
> Was that the contractor did
> Cheops out of several millions.
> And that Joseph's sudden rise
> To comptroller of supplies
> Was a graft of monstrous size
> Worked on Pharaoh's swart civilians.

The account of Joseph in the Old Testament is much more complete and to his credit. It tells how he left his country under difficulties, and, coming into a strange country, he rose, through his diligence, to become the principal person in the state, second only to the King. Now, gentlemen, the Biblical narrative brings us to that point—the point where Joseph had public relations with all the other ancient nations, while his private relations held all the best-paying jobs—it brings us up to the climax of his career and then it hands us an awful jolt. Without any words of preparation or explanation, it says bluntly:

"And Joseph died, and there arose a new king in Egypt which knew not Joseph."

I submit, gentlemen, that this is one of the most staggering lines which has ever been written in a business biography. Here was a man so famous that everybody knew him and presto, a few people die, a few new ones are born, and *nobody* knows him. The tide of human life has moved on; the king who exalted the friends of Joseph is followed by a king who makes them slaves; all the advertising that the name "Joseph" had enjoyed in one generation is futile and of no avail, *because that generation is gone.*

Now, what has all that to do with you? Very much indeed. When we gathered in this room this afternoon, there were in this country, in bed, sick, several thousand old men. It perhaps is indelicate for me to refer to that fact, but it is a fact, and we are grown up and we have to face these things. On those old men you gentlemen collectively have spent a considerable amount of time and a considerable amount of money. It is to be supposed that you have made some impression upon them regarding your service and your purposes and your necessities. But in this interval, while we have been sitting here, those old men have died, and all your time and all your money and whatever you have built up in the way of good-will in their minds—*all* your labor and investment have passed out with them.

In the same brief interval, there have been born in this country several thousand lusty boys and girls to whom you gentlemen mean no more than the Einstein theory. They do not know the difference between a Mazda lamp and a stick of Wrigley's chewing gum. Nobody has ever told them that Ivory Soap floats or that children cry for Castoria, or what sort of soap you ought to use if you want to have a skin that people would like to touch. The whole job of giving them the information they are going to need in order to form an intelligent public opinion and to exercise an intelligent influence in the community has to be started from the beginning and done over again.

So the first very simple thing that I would say to you (and it is so simple that it seems to me it ought to be said at every convention of this kind) is that this business of public relations is a very constant business, that the fact that you told your story yesterday should not lead you into the delusion of supposing that you have ever told it. There is probably no fact in the United States that is easier to impress upon people's minds than that Ivory Soap floats, and yet the manufacturers of Ivory Soap think it is not inconsistent or wasteful to spend more than a million dollars a year in repeating that truth over and over again.

Cultivating good-will is a day-by-day and hour-by-hour business, gentlemen. Every day and every hour the "king" dies and there arises a new "king" to whom you and all your works mean absolutely nothing.

Now, the second very simple thing which I might say to you is that in your dealings with the public, in what you write and say, you must be genuine.

When I came to New York a great many years ago I had a lot of trouble with banks. It was very hard to find any bank that would be willing to accept the very paltry weekly deposit that I wanted to make. Finally I discovered one which was not as closely guarded as the others, and I succeeded for a period of three years in being insulted by the teller every Saturday. At the end of three years, when I came to draw out my money, I had an audience with the vice-president who wanted personally to insult me. I said to myself, if I live and grow old in this town, some day I think I would like to take a crack at this situation.

And so the years passed (as they have a habit of doing), and I lived and grew old, and one day a bank official came in to us and said he would like to have us do some advertising for him. I said to this banker, "Now you go back to your office and shave off all the side-whiskers that there are in your bank and you take all the high hats and carry them out into the back yard of the bank and put them in a pile and light a match to the pile and burn them up, because I am going to advertise to people that you're human, and it may be a shock to have them come in and find you as you are."

So he went back to his bank and I wrote an advertisement which said:

> There is a young man in this town who is looking for a friendly bank; a bank where the officers will remember his name, and where some interest will be shown when he comes in, etc.

It was very successful. It was *too* successful. It was so successful that we could not control it, and all over the country there broke out a perfect epidemic, a kind of measles, of "friendly banks." Bankers who had not smiled since infancy and who never had had or needed an electric fan in their offices suddenly sat up and said, "Why, we are friendly."

Well, our bank dropped out. The competition was too keen. But it culminated, I think, in a letter which I saw and which was mailed by the president of a really very important bank in a large city. I won't attempt to quote it verbatim, but it was to this effect:

> Dear Customer: As I sit here all alone in my office on Christmas Eve thinking of you and how much we love you, I really wish that you and every other customer could come in here personally so I could give you a good, sound kiss.

Well, that is a trifle exaggerated, but the fact is this—if you don't feel these things you can't make other people feel them. Emerson said, as you will remember, "What you are thunders so loud I cannot hear what you say." Unless there is back of this desire for better public relations a real conviction, a real genuine feeling that you are in business as a matter of service, not merely as a matter of advertising service—unless there is that, then it is very dangerous, indeed, to attempt to talk to the public. For as sure as you live the public will find you out.

The third very simple thing, and the last thing I suggest, is this: In dealing with the public the great thing is to deal with them simply, briefly, and in language that they can understand.

Two men delivered speeches about sixty years ago at Gettysburg. One man was the greatest orator of his day, and he spoke for two hours and a half, and probably nobody in the room can remember a single word that he said. The other man spoke for considerably less than five minutes, and every school child has at some time learned Lincoln's Gettysburg Address, and remembers it more or less all his life. Many prayers have been uttered in the world—many long, fine-sounding prayers—but the only prayer that any large majority of people have ever learned is the Lord's Prayer, and it is less than two hundred words long. The same thing is true of the Twenty-third Psalm, and there is hardly a Latin word in it. They are short, simple, easily understood words.

You electric light people have one difficulty. I was in Europe this spring, and I rode a great deal in taxicabs. In England I sat in a taxicab and watched the little clock go around in terms of shillings. Then I flew over to Amsterdam and watched it go around in terms of guilders. Then I went down to Brussels and it went around in terms of francs. Then I went to France and it went around in terms of francs of a different value.

I would sit there trying to divide fifteen into one hundred and multiply it by seven, and wonder just where I was getting off, and I have no doubt now that really I was transported in Europe at a very reasonable cost, but because those meters talked to me in terms that were unfamiliar I never stepped out of a taxicab without having a haunting suspicion that probably I had been "gypped."

In a degree you suffer like those taxicab men. You come to Mrs. Barton and you say, "Buy this washing machine and it will do your washing for just a few cents an hour." She says, "Isn't that wonderful!" She buys it, and at the end of the month she sits with your bill in her hands and she says, "We have run this five hours, and that probably will be so and so." Then she opens the bill and finds she has not run it five hours; that she has run it 41 kw. and 11 amp. and 32 volts, and that the amount is not so-and-so but is $2.67.

Well, that is a matter that I suppose you will eventually straighten out.

Asking an advertising man to talk about advertising at a convention like this is a good deal like asking a doctor to talk about health. I have listened to many such addresses and they are all about the same. The eminent physician says, "Drink plenty of water. Stay outdoors as much as you can. Eat good food. Don't worry. Get eight hours' sleep. And if you have anything the matter with you, call a doctor."

So I say to you that there is a certain technique about this matter of dealing with the public, and if you have anything seriously the matter with you—whether it be a big advertising problem or merely a bad letterhead (and some of you have wretched letterheads)—there probably is some advertising doctor in your town who has made a business of the thing, and it may be worth your while to call him in. But in the meantime, and in this very informal and necessarily general talk, I say to you, "Be genuine, be simple, be brief; talk to people in language that they understand; and finally, and most of all, be persistent." You can't expect to advertise in flush times and live on the memory of it when you are hard up. You can't expect to advertise when you are in trouble, or about to be in trouble, and expect to get anywhere in that direction. It is a day-by-day and hour-by-hour business. If the money that has been thrown away by people who advertised spasmodically were all gathered together it would found and endow the most wonderful home in the world for aged advertising men and their widows. Don't throw any more of that money away. If advertising is worth doing at all, it is worth doing all the time. For every day, gentlemen, the "king" dies, and there arises a new "king" who knows not Joseph.

NATIONAL ADVERTISING[1]

CHARLES COOLIDGE PARLIN

Mr. Parlin is Manager of the Division of Commercial Research, Advertising Department, Curtis Publishing Company, Philadelphia. He gave this speech before the Common Brick Manufacturers' Association meeting, New Orleans, Feb. 23, 1926.

Since I spoke to this Association three years ago, there has been a very material development in many principles of advertising and selling. These three years have been years of building activity and years of general prosperity.

It may be well to consider first the general problem of reaching a national market; second, the problem of cooperative work; and, third, the specific problems of this particular Association.

The problem of reaching a maximum market may be illustrated by groupings of various counties. In the first place, there are 226 counties in the United States, in each one of which is a city of more than 25,000 population. In every one of those cities is a large market for this Association. Those counties are widely scattered in all parts of the country, and it would be difficult by local efforts of any kind to reach that market.

In addition to these 226 counties, there are 294 other counties in which there is a city of more than 10,000 population. Here, again, the counties are widely scattered. They would be difficult and expensive to reach through any local means, and yet in all of those there is a definite market opportunity.

There are 397 other counties, again widely scattered, in every one of which there is a town with more than 5,000 population, and in all of those exists at least some market for your product, and if all of those three groups of counties should be combined there still remain outside 2,148 other counties in which live 30 per cent of the population and in which are one-third of the passenger cars. There is a substantial part of the market within these 2,148 counties.

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[1] By permission of the author. Reprinted from the *Proceedings* of the eighth annual convention of the Common Brick Manufacturers Association of America, 1926.

For national distribution, it is necessary to reach all these various markets, putting against each an amount of appropriation that would be commensurate to the market opportunity.

Some years ago we made an exhaustive study of how to establish an index by which any manufacturer could measure his market. We took a variety of figures, income tax returns, population, automobile registration, and we tried to obtain an index figure. After working a year we abandoned them for the reason that every time we had a different combination of figures, we obtained a different index.

We found that of all the lines of figures we worked with, the one nearest to the average of them all was the Curtis Combined Circulation figure, and today that combined circulation figure is being used by more than fifty manufacturing concerns, including some of the largest, as the index by which to measure their opportunity and upon which to establish their quotas of sales for the future.

To illustrate by one or two cases how this works out, in 28 states, there was 74 per cent of the population; 88 per cent of the personal income tax returns. If you are seeking an index, 74 and 88 are far apart, but *The Saturday Evening Post* circulation was 81 per cent, which is about a mean between 74 and 88. There were 82 per cent of the manufacturing establishments, 90 per cent of the manufactured products and 83 per cent of the automobile registrations in that area.

To illustrate this state by state, the sales of five companies, each of which had a national distribution, is similar to the Curtis Combined Circulation in each state. For example, in Pennsylvania there is about 8 per cent of the sales of five companies and 8 per cent of the sale of Curtis Publications. The two lines correspond closely.

In the state of Illinois, we divided the counties into four groups of 26 counties each, ranked according to Curtis Circulation. In the half where Curtis Circulation is least, there is only 8 per cent of the circulation, but there is only 5 per cent of income tax returns, only 3 per cent of the wage earners and only 3 per cent of the value of manufactured products.

Similarly in the sections of a city, the areas where there is the greatest circulation are the better residential districts. For instance, taking *The Saturday Evening Post* and *The Ladies' Home Journal* combined against the total number of families, there is more than one copy for every two families in some of the better residential districts of Chicago.

The close correlation between market opportunity and Curtis Circulation, in the first place, is due to the size of the sales organization. Selling our publications at the present time are more than 175,000 salesmen. These 175,000 salesmen would fill the Yale Bowl twice over and leave 15,000 outside waiting for the third game—or 175,000 families would make a city the size of Boston. These salesmen are pushing your message that you put into Curtis Publications as far as it is probably profitable for you to attempt to go in your distribution.

These are not merely disorganized groups, but there is in every one of 1,689 cities a district agent who has a group of boy agents. The boy who sells on the street corner is not classified as a boy agent. The boy agent lives in the residential sections and has a clientele that he sells regularly. Here is a highly developed and organized system that has been worked out over a long period of time. A boy comes to work at perhaps the age of eight or nine, with the consent of his parents and on the condition that he maintains a good standing in school. If he stays a certain length of time, he becomes a master salesman. The company guarantees to find a position for him when he is through school and wants to go to work. If he remains a master salesman for three years, the company lends him $1500 toward his college education, in order that he may go on and take the advantage of college.

The Curtis Circulation is an actual sales accomplishment. It is for that reason a better index than any based on purely economic factors because it is the result of an actual accomplishment.

We have prepared a booklet containing the circulation of Curtis Publication by counties and by cities of 1,000 population and over. The counties are arranged according to the amount of circulation in each, the largest amount at the top. In each county are listed the cities of 1,000 population and over, ranked according to the amount of circulation in each. From this the relative importance of counties can be judged and of the distribution points within each county. The counties toward the top of a list in each state are those that offer the best opportunity. The counties toward the bottom are those that are less likely to respond to sales effort.

During the past two years, there has been a marked growth in advertising volume. The growth of advertising has been so rapid in the last seven years that it is difficult to keep pace with this development. There have been fundamentally three reasons for this growth.

In the first place, there has been large growth of the number of people with larger incomes. In 1923, the latest year for which figures are available, there were about three times as many people made an income tax return of $2,000 to $3,000 as in 1917. There were about ten times as many made a return of $3,000 to $5,000 as in 1915; five times as many of $5,000 to $10,000 as in 1915; twice as many made a return of $10,000 to $25,000. The number of people who are in a position to build the kind of house they please has greatly increased. There are a great many additional people who can now build to suit their tastes, and there are a great many more now than formerly who could now build a moderate priced house.

The second factor has been the development in education. In 1890, there were about 400,000 students enrolled in high school. Today there are 2,250,000. There are more students in college today than there were in high schools thirty years ago, and this means that students go from one home to another, they see how people live and they bring pressure to bear upon their parents, and as they leave college and go out into life, they go out with ideas of beautiful, comfortable homes.

The third factor has been a marked development of the use of the automobile. Some time ago we made a survey of 144 square miles in Kansas. Eighty-three per cent of the farmers had automobiles; 83 per cent were independent of the corner store. They could go where they pleased to buy; 83 per cent could travel and visit people, their friends, wherever they live, and in turn their friends also equipped with automobiles could come to visit them.

With the growth in the number of people with a larger income, with more education and with more individual transportation, has come this great growth in advertising.

The development of advertising revenue over a long period of time is shown by the growth of Curtis Publications for thirty-four years. There was a slow development up to 1908, not rapid up to 1915, accelerated a little then for three years. The striking development, however, has been the outstanding volume of the last seven years. The volume for 1925 reached approximately $64,000,000 and was materially larger than that of any preceding year.

This growth has a marked significance. In the first place, it means that a new method of selling and developing markets has come about, and, in the second place, something less concrete, it means that a new generation has arrived that reads advertising believingly.

The older generation read advertising a long time ago and often when they purchased an article as a result of that advertising, they were disappointed. There is the generation now in its prime, some of whom believe in the advertising, others who are frankly doubtful. The younger generation, however, reads advertising believingly. They bought something and found it good. They have had no reason to doubt advertising and they are the important market today. This is the important market for your product.

Stores and hundreds of houses are being built for the young man as compared with the one for the man who has arrived, and the younger man does want to know the kind of brick and mortar and cement that goes into his home, and you can sell him.

The greatest thing that any individual or corporation has is good will. The amount you can sell your business for over and above the value of your building and your stock is the measure of success in the community. That measure of success is builded by a reputation for service, a reputation for carrying the right lines, a reputation for having given the right advice. It is not built on price. The greatest thing that this organization can have is an appreciation on the part of the public for the product you have to sell—common brick; it has inherent qualities of value and qualities which can be made into beautiful homes.

This good will has been builded for many products by advertising. In the structural classification, in which your line would fall, the advertising in *The Saturday Evening Post* amounted to over $1,900,000 in 1923, to something over $2,800,000 in 1925. Or, taking the automotive classification, again there was a growth in *The Saturday Evening Post,* and that publication has the dominant position in the industry. The electrical industry, once more, shows a marked growth in the period of three years.

In contrast to that, the total association advertising in all publications grew very rapidly up to the period of 1920 and then eased off and started to grow again. Why is it that when the advertising of the individual manufacturer has grown, the association advertising is not growing? Association advertising is ordinarily the outcome of adversity. In a time of prosperity, an individual manufacturer will take from his pocket in order to entrench himself and build against the day when sales are more difficult.

With an association, that is difficult to do. As long as the members of an association are prosperous, it is difficult to get interest engendered in protecting themselves against the day that will not be so prosperous, and I think that accounts for the fact that during the period of the last two years there has been no material increase in your advertising, so far as national magazines are concerned.

These have been years of prosperity when you have not felt the pinch of competition, but it would be well for an association, as for an individual, in a time of prosperity to prepare against the day when conditions are not so prosperous. In a period when sales are difficult, an association feels they have no money; when sales are good, they feel they do not need the advertising.

In association advertising the first problem and the most serious one, is the problem of an unwieldy organization in which a great many people have to be brought together, and it is difficult to bring about a concerted action on the part of the group.

There are serious difficulties, and the problem of association advertising is not advertising—the problem is cooperation. Advertising will work for an association exactly as it works for an individual. People take the message at its full face value if it is signed by a responsible party, whether an association or an individual. With an association, however, there are many problems the individual does not have, and they are the problems of cooperation.

In the first place, the members will not all agree. Some people will not join in, and the people who do not come in are going to profit just as well as the people who do, and you have to have enough faith in the proposition to carry through your project in the face of this.

There is another problem—the members of an association cannot all agree on details. You have to leave it to a committee, you have to have a committee of your own number that is going to decide how the money is to be spent, going to select the advertising and select the media, make the copy and do all the work.

The only things an association as a whole can decide upon are the broad fundamentals as to whether you want to advertise, and if so, the aims to be attained, the amount of the appropriation for advertising, and the methods by which the money be raised. Beyond that, you must leave it to a committee of your own number; it means that you must trust each other in the working out of this problem.

One other thing is vital, and that is, there must be within your own organization a group of men who have faith in the proposition to declare themselves for it and to work for it. The only way that you can ever make a success of your advertising is for a group of your own men, who are spending consequential sums of money, to take the thing in hand and do the work that is necessary to be done.

The first problem of this association is to hold the market you already have. You have some fine markets for common brick, but those markets are being attacked at the present time. A few copies of *The Saturday Evening Post* for the last month will show a substantial number of advertisements of your competitors.

You have one page, and it is a beautiful home that you have pictured there, and a fine piece of copy, but this is the only full page on your schedule. The amount of money available for space is so scanty that the rest will have to be in smaller units.

Three years ago, you were raising about 5 cents per thousand of brick for the national advertising, which on the face of it, created a fairly large sum—not far from $150,000, but out of that had to come the entire overhead, the booklets and all the various expenses, so that when you came to the actual amount, it was something less than $50,000 for space.

You have carried the advertising expenditure just to the point where every additional dollar you raise would go for space, and then have stopped short of a program that will adequately protect your markets against the assaults that are being made by these other lines. It would not be too much to look forward to raising another five cents—the raising of an additional $150,000.

I do not know what is practicable at this time, but I believe you ought to look forward to taking an immediate step toward a goal that ultimately will give you an adequate coverage to protect your market and to develop it.

It would be impracticable at the present time to take that step all at once, but in this day of prosperity, you ought to plan immediately to take some step toward that goal, and if you went half way, if you added 2½ cents, you would treble the amount of space you have to put in advertising to protect your proposition.

A man in the lumber business once asked some years ago: "What evidence have you that advertising would be effective for lumber?" One evidence is that advertising of substitutes for lumber has been successful enough to get the man who still has a lumber yard in front of his place to spend most of his time selling substitutes for lumber.

The advertising gives a man the idea of what to talk about, it gives the young people who are going to be your market in the future something to read about and think about. They are going to want these ideas. Your product today is not in the consciousness of the American people as being something beautiful to build homes of; it has been used in cheap construction in so many places that there is an impression that it is cheap.

It may be a man who plans to build of brick is going to build an ugly house. You can teach him how to make a beautiful one. That is as important as anything else. If you do nothing else but convert the man who is going to build a house of common brick into a man who is going to build a beautiful home of common brick, you have gone a long way, and if you will convert a man who is going to build of common brick into an appreciation for it, you will have accomplished a great deal. One person who is going to read the advertising is the man who has already built a home of common brick. He has been reading about cement construction and about wood construction and about steel construction, but he built of your product, he is going to read your advertising, and out of it he will get an assurance as he finds that he can build of your product and have a beautiful home and one that can hold its own in the pages of advertising with that of other products.

One thing more is essential to the success of your proposition, and that is that when your advertising is used, you will get behind it to make use of it. Do not look upon national advertising as being just something that is far away: it goes right into your community.

National advertising is local advertising in your community. Make use of it, tie up your own sales efforts with it, use the words of the copy in selling, talk the same language, have the salesmen talk the language, have your clerks and distributors talk the language of the copy. Whenever you find a man who is building, say: "Did you see our advertisement in *The Saturday Evening Post?"* I would have my salesmen take a copy and read some of it to every distributor. If he could read it all, I would have him read it all; if he could read only a few lines, I would have him read a few lines.

You have a message which seems old to you because you have known it so long, but a new generation has arrived that does not know it.

You are not selling a standing army, you are selling a parade; part of your market every year is passing out and another part is coming in. The part that is coming in is a generation more susceptible to advertising than any generation we have ever had.

Your program is something you ought to decide for yourselves. I would want to take immediate steps toward an arrival at an adequate advertising program. If three years ago you had taken a forward step, today would you not be strategically in a better position with your organization and with your product than you are today? Three years from now, what will be the situation? Shall you still be debating whether it is time to take a forward step or will you make the next three years count toward making some definite protection of your market?

If you have enough faith in your proposition to believe it is worth while to maintain your market through advertising against the assaults being made upon it; if you believe you have a product that will lead to beauty in homes, and you can teach the American public to believe that they can make beautiful homes out of common brick; if you are ready to back up your faith by your words, your work, your expenditures, then you have something you may look forward to with the hope that in the end you can push that message out to the consumer, who in the last analysis makes and unmakes the manufacturer and the distributor. Whoever wins his confidence has won the day.

THE WORLD FROM ABOVE[1]

MASON M. PATRICK

Major General Patrick, then Chief of the Air Service, United States Army, delivered this address at a meeting of the Association of Life Insurance Presidents, New York, Dec. 11, 1924. The address was preceded by the exhibition of a reel of motion pictures showing views of aerial navigation, with official pictures of scenes connected with the flight around the world by United States Army fliers.

When invited to address this meeting I must confess that I was somewhat cheered and elated by the knowledge that an association of insurance men was at last willing to take some kind of a chance on an aviator. I hope your Committee of Arrangements has not underestimated the hazard of this risk.

For my part I am going to venture the bold statement that before very long air traffic, air transportation, will be on a par with other transportation insurance risks. Otherwise history will have reversed itself.

Someone has said that the most precious thing in the universe is "Time," for God measures it out second by second and no two seconds occur simultaneously. Throughout all the ages men have been possessed with a certain divine discontent with their means of annihilating space and time, they have striven to lengthen their days, to devise methods by which they may transport themselves and their possessions more quickly from place to place. Walking and running proved too slow and irksome so prehistoric man harnessed the reindeer and the horse; with oars and sails his boats propelled over the water; railroad trains, steamships, and, later, the automobile, catered to his desire for more and more speed. Those of us whose memories are long enough to span only a score of years can easily remember the beginning of man's latest attempt to achieve the conquest of the air. And today he can literally look down upon the world from above, and in aircraft can surpass birds in flight, can travel faster than in any other vehicle which he has invented.

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[1] By permission of the author. Reprinted from the *Proceedings* of the eighteenth annual meeting of the Association of Life Insurance Presidents, 1924.

First of all, it must be remembered that although the Wright brothers did make their first flight in an airplane twenty-one years ago, it was really not until the World War had shown the military value of aircraft that any considerable development took place and during the four years this war lasted the improvements in planes and engines were entirely along military lines. This was beneficial, for under war's stress, with the necessity for improvements so great, much was accomplished. On the other hand, in this country at least, it left a vastly expanded industry with no peace-time demand for its products and also a great number of military aircraft which were subject to rapid deterioration and which were sold or offered for sale at much less than the cost of manufacture. From this state of affairs we have not yet entirely recovered.

It is a fair statement that the legitimate business-like study and development of aircraft—and this applies abroad as well as in the United States—covers only the time since the war or say a period of only five or six years.

I want to touch for just a moment upon the military phase of this development and use of aircraft. The experience of the World War has convinced all who have studied the matter that in future wars aircraft will play an important or possibly a decisive part; that the only adequate and effective defense against an air attack is an air force of your own; and hence such an air force properly equipped, highly trained, must be part of our military establishment.

Aircraft operating with land armies or with a fleet on the high seas, ascending to considerable heights, make it possible to see over large areas and by visual reconnaissance and by aerial photography to secure military information of great value. When a mile high the horizon is a hundred miles away and one overlooks an area of about 30,000 square miles. As a striking force armed with machine guns and bombs, aircraft can wreak havoc on all beneath them, whether it be cities, industrial establishments, lines of communication, land forces or naval vessels.

So far as our national safety is concerned, it is my firm opinion that an adequate air force is the best peace insurance policy that this country can obtain.

Aircraft as weapons of warfare yearly become more swift, more powerful, more destructive; but it is in aircraft as agents of commerce, carrying the world's goods and transporting the peoples of one community to another, that the deeper significance lies.

And right here it may be said that we do not yet know all that must be known about the design of aircraft for the many and various uses for which they may be employed. We are learning all the time, but as has been the case with all other methods of transportation, steamships, railroads, automobiles, we have had to learn by our mistakes. The work of the pioneers has been beset by many dangers, and it has cost many lives. Mark Twain once said that the only two things characteristically American were ice water and railroad accidents.

Insurance agents do not run after trail blazers. They would not be good insurance men if they did. So these pioneers are spared at least this one agonizing experience. And it was a long time before the Neanderthal man who broke reindeer and rode three-toed horses was invited to chisel his name on the dotted line. We can imagine how a Board of Directors treated his application.

I am told that there once was, possibly there still is, a Scottish Widows' Society that wrote insurance. Just a hundred years ago its Board of Directors, after much travail of spirit, gave their policy-holders permission to ride on steam vessels without voiding their insurance, provided these dangerous craft followed prescribed routes which took them not far from land. And yet today there is probably no safer place for a man than on an ocean steamer.

Inevitably the time will come when the life insurance companies will be willing to grant insurance at regular premiums on the lives of travelers by air and the operators of aircraft. This would greatly aid the development of air transportation and I hope that this Association will give careful consideration to such an important matter. While I am informed that, generally speaking, insurance policies draw no distinction between air and railroad travel and that the ordinary life insurance once issued applies equally to both, there is still a hesitancy on the part of some underwriters to insure either amateur or professional flyers. When such risks are accepted now they cover only limited amounts and at increased premiums. My office is gathering statistics which will be useful, I am sure, in determining the premiums that should be charged and these data will be made available whenever they are desired.

The British Aviation Insurance Group will now insure airplanes against fire, theft and accidental damage; pilots and passengers against injury or death; against injury or death to third parties; and the safe arrival of cargoes.

It is significant also that the insurance rates on fragile articles, fashion goods and the like shipped between London and the Continent are *several times less by air* than by boat and rail when all risks are included. If theft risks are excluded from boat and rail coverage, the rates are practically the same. This theft hazard for such shipments on continental trains is unusually high, while it is practically negligible if they go by air.

While it is known that the National Aircraft Underwriters Association in this country has been studying the matter, as yet they are not prepared to issue policies.

It is a fact, however, that much has been done during the past few years to make flying less hazardous. This involved the consideration of many factors, among them the improvement of the equipment, laying out and marking air routes and the creation of proper facilities along them. With landing fields at proper intervals, many of the risks of flying would be eliminated. So long as the power plant in the aircraft—that is, the motor—functions properly, or in other words, as long as one can stay in the air, there is little or no danger. Motor failure makes it necessary to land. Many of the accidents which occur are due to the fact that when forced to land there is no unobstructed field upon which an airplane may alight.

That there are comparatively few casualties suffered by the Air Mail is marked evidence of the safety with which a well-designated air route, one along which there are enough landing fields, may be traversed. These Air Mail pilots flew over two million miles without a single fatality. On the British and Dutch air lines during the past three years the average number of passenger air miles per passenger fatality was 2,663,000. Prior to 1913 for a number of years there was an average of one passenger casualty on our railroads for about every two million passenger miles. Military flying is, of course, more dangerous than ordinary commercial air travel. And yet it is gratifying to state that our fatality rate in the Air Service measured by aircraft flying hours, or by the number of miles flown, is markedly less than it was even three years ago. That air travel will be made more and more safe as time goes on there seems to be no reason to doubt.

In fact it is believed conclusive evidence already exists that air travel under proper conditions can be conducted with a degree of regularity, safety and dispatch sufficient to establish it as a significant additional channel of commerce in the transportation resources of a nation. Air transportation has passed the experimental stage. The knowledge gained during the past six years in the operation of regular air transportation services, particularly in Europe, has demonstrated incontestably that aircraft as agents of commerce have "arrived."

The following figures, recently compiled in my office, will serve as a convenient measure of this accumulated experience:

During the five years from 1919 to January 1, 1924, regular scheduled air transportation services have operated an aggregate mileage of over 20,000,000 miles. They have transported during this period a total of 121,496 passengers, 8,200,000 pounds of merchandise and 7,145,000 pounds of mail.

If we allow 150 pounds per passenger, as a conservative estimate, and add to the above figures the probable traffic during the present year as determined from available statistics, regular air transportation services will have transported by the end of 1924 a grand total of 51,000,000 pounds an aggregate distance of 28,000,000 miles. It is therefore evident that much information has been gathered to aid in judging the merits of aircraft as regular transportation agents.

During the past three years the Post Office Air Mail Service in this country has transported over 4,000,000 pounds of mail along the transcontinental route between New York and San Francisco with a loss of only five one-thousandths of 1%. This may be compared with the percentage of *registered packages* lost in the United States during 1922, namely seven and a half one-thousandths of 1%.

This Air Mail has already brought New York and San Francisco within about thirty hours of each other, lessening by at least two whole days the time otherwise required for the delivery of mail from one terminus to the other, and very soon it will be possible to mail a letter after the close of the business day in New York with the assurance that it will be delivered in Chicago by the time the next business day there begins.

A careful survey has shown that the average daily transfer of bank checks between New York and Cleveland amounts to about $3,000,000; between New York and Chicago to about $9,000,000. In fact, taking the cities of Chicago, Detroit, Cleveland, New York, Philadelphia, Baltimore and Washington, the average daily exchange of all interest-bearing shipments among them amounts to about $35,000,000. It is a simple matter to calculate the interest for each day saved in transit.

Briefly then, after an impartially exhaustive analysis of all the available evidence, we have concluded that aircraft, under suitable conditions and with proper management, may be operated in regular transportation service for the carriage of passengers, mail and goods with equal or greater safety and reliability than existing standards for train service and with a great saving in time.

Further to illustrate this time saving, only a few weeks ago I was in

Boston and wanted to send a package and message to New York. These were given to an airplane pilot who flew from the Boston Airdrome to the landing field at Mineola on Long Island, delivered them, received an answer to the message and was back in Boston just two hours and fifteen minutes from the time he left there. On another occasion when in Washington it was necessary for me to consult with one of my men in Detroit. He was called over the long distance telephone, told to come to Washington at once. He left the Detroit field and landed on the Washington field just three hours and two minutes later.

Most of you, no doubt, know of the development of air transportation in Europe and that it is a simple matter to travel by air between practically all European capitals. These European air transportation companies have regular schedules and tariffs just as do railroads and steamship lines. The question is often asked why, in this country where distances are so much greater, air transportation has not before this come into being. The answer is a simple one. The European countries have recognized more clearly than ourselves the military and economic advantages of developing and promoting these air transportation companies. They therefore subsidize them or practically guarantee to the operating agencies a profit on their investment, and in addition there is Government supervision of all flying. In this country we always balk at the word "subsidy" and yet there is no method of transportation ever employed which has not been subsidized indirectly by States or by the Federal Government, or by both. Even in the early days of animal-drawn vehicles the individual did not build his own roads except on his own property and these were provided by county or state governments. Many of our railroad systems were given immense land tracts. The Federal Government improves and lights waterways and harbors while State and Federal agencies are spending money by the hundreds of millions of dollars for building roads for automobile traffic. These are all indirect subsidies to the different methods of transportation. So far nothing of this kind has been done for air transportation. Furthermore, the vehicles employed on land and water are carefully inspected and as a rule their operators are licensed.

With similar governmental supervision and aid there is no reason why air transportation will not be financially successful. That its advantages will be duly recognized and that such assistance will be forthcoming, there seems to be no reasonable doubt. We cannot afford to lag behind, for if our national safety depends on the development and use of aircraft, so, too, it may be said without exaggeration that our economic independence, our ability to compete with others in the markets of the world may likewise depend upon the development and use of aircraft.

The spectacular exploits of aircraft in recent years, of which perhaps the Round-the-World Flight of our own Air Service planes is the culminating example, are indicative of the almost unlimited field of application to which aeronautics is adapted. They are stimulating suggestions of the great future rôle which aeronautics will play in binding the peoples of the world together in one vast friendly fraternity.

This World Flight was undertaken for many reasons, to ascertain the ability of our equipment to withstand varying climatic conditions, to test out the route followed around the world, its feasibility, its practicability and to obtain other much needed data. It showed clearly that aircraft furnishes an easy means of communication particularly with distant parts of the world where such were lacking. The men sent on this mission carried from us to the peoples of many other lands a greeting and message of good will and these winged ambassadors of ours so bore themselves that we could be proud of them as our representatives and can feel that everywhere they landed they created a most favorable impression and they were worthy of the trust placed in them. With it all, since they have returned from their great adventure they have shown themselves to be modest and unspoiled.

In the years to come and possibly not so far in the future, looking at the air liners then in common use, men will view in the National Museum the tiny planes that made the first air journey around the world and will marvel that any man was bold enough to attempt in them such an undertaking, just as today we contrast the *Leviathan* with the cockleshells in which Columbus ventured forth upon the trackless and uncharted ocean.

Vivian and Marsh in their History of Aeronautics say,

> A very great part of the inventive genius of man has gone into devices intended to facilitate transport, both of men and goods, and the growth of civilization in reality is measured by the improvement of the means of communication.

Trotter has pointed out, in his brilliant analysis of the "Instincts of the Herd in Peace and War," that it is man's unique capacity for communication that has made him master of the world. Speaking of human society he says:

> The ultimate and singular source of inexhaustible moral power in a gregarious unit is the perfection of communion amongst its individual members. . . . In the very flesh and bones of man is the impulse towards that closer and closer union which Nature has so long foreshadowed. . . . That perfect unit will be a

new creature, recognizable as a single entity; to its million-minded power and knowledge no barrier will be insurmountable, no gulf impassable, no task too great.

It is the realization that air transportation is destined to play an increasingly significant part in the final attainment of such a goal that inspires all of us who are interested in its development and urges us to greater and greater efforts.

As one goes higher, and looks down upon the World from Above, whether from a height reached in an airplane or from the top of the business ladder, the air is rarer and left far behind are the companions of lower levels. But there are compensations. The view is broader and the mind is more attuned to grasp its meaning.

With better means of communication comes better understanding among men and among nations. Aircraft, terrific engines of war, may do much to promote the peace of the world. Again, improved methods of communication bridge the space between invention and general usage. Aircraft are thus at the same time a cause and an effect. They are their own stimulant without endangering the stability of the Constitution or of any recent amendment. The rapid development of aeronautics stimulated the imagination, provoked hope and brought about its realization. The present generation has dreamed, has imagined, but it has also made practical the conception of utilizing the great air spaces. Their hitherto mystery is a mystery no longer.

With admitted pride in what we have already done in this, our chosen field, we pray for increased power of accomplishment and we are sure that within a brief span of years we will receive a Providential benediction with the certainty of greater and greater achievements.

PROGRESS IN CHEMISTRY AND MEDICINE[1]

FRANCIS P. GARVAN

Mr. Garvan, President of the Chemical Foundation, Inc., New York, delivered this speech at the meeting of the American Drug Manufacturers' Association, New York, Apr. 12 to 15, 1926.

Seriously, I haven't much to say to you, except one little message which I am going to give you.

The Chemical Foundation keeps up the fight. Now, it is not so much the fight against Germans as it is the fight against the accumulated ignorance of the subject of chemistry in this country, accumulated over a period of 100 years. The sky is breaking and brightening each and every day, not alone, of course, due to our own efforts, but due to the immense awakening of scientific development which was caused more or less, or in large part, by the recent great war. We find an entirely different audience in the American people today to what we found seven years ago.

An instance of it is in the fact that our latest book "Chemistry and Agriculture" has been out only eight days and we have received 6,000 orders at $1.00 apiece written in by the mail; that is, none of those orders are from book sellers. They are all individual orders of interested people in this country. If you can find anywhere in the world a people who are as interested as this manifests, then it is unknown to me.

We have sold 47,000 volumes of Volume No. 1 at $1.00 apiece of our "Chemistry and Industry" and some 26,000 or 27,000 volumes of No. 2. In the fall we expect to bring out "Chemistry and Medicine." A great many of our greatest scientists throughout this country, assisted by scientists abroad, are now diligently at work making that book comprehensive and clear to the laymen, and we expect that that book will do as much, if not more than our original so-called "Drug Book" which we have now circulated throughout America to the extent of over 600,000 copies.

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[1] By permission of the author. Reprinted from the *Proceedings* of the fifteenth annual meeting of the American Drug Manufacturers' Association, New York, 1926.

The men who are doing this work deserve your unstinted devotion and gratefulness. They are not receiving any remuneration. One or two of them have taken their sabbatical six months from their universities and instead of spending it in travel and pleasure, they are devoting that time to the promulgation and perfection of this book which is to be presented to the American people at the bare cost of printing.

Another great thing that is nearing accomplishment, in which I know all you gentlemen are interested, is the matter of biological stains, and there again the gratitude of all of you is due to Dr. Kahn and his associates who have now made this country the leader of the world in the production and quality of the biological stains they produce.

In January we started the first and finest magazine in the world bearing upon the use and advancement of the use of biological stains. We shortly expect that the use of our American stains will be spread throughout the world.

Another great achievement in the line of progress is the work done by the Eastman Kodak Company in the production of fine chemicals. Their number now reaches well over 2,000. As you know, they rank superior in quality in most instances, and on the average cheaper in price, to the fine chemicals of Germany, and we are just on the eve of advancing the use of American fine chemicals to other countries than our own.

All these things mean progress but it is a peculiar thing, sometimes it is a discouraging thing, more often it is an encouraging thing,—as it ought to be—that each step we take forward opens only new fields of work and labor. At first it was to equip us with dyes and then drugs. The dyes and drugs have long since been pushed aside by the tremendous development in our chemistry of food products, in the development of national researches such as petroleum and oil and the chemical developments of the alcohols, and the high compression developments of the nitrates from the air, etc.

Sitting at my desk, it seems to me as if a new industry were born in this country every minute, fathered by chemistry and mothered by research. But recently, in my pride and boasting of our achievements, the curtain lifted over something undone, a problem I have brought to you and which has, I might almost say, overwhelmed me in its importance and in the little that has been done with it. That is the subject of the common cold.

When you come to consider that the seed of creation in the father and the mother in itself is weakened by the common cold, that the pregnant woman is weakened by the common cold, that the child through its first years of life is weakened by the common cold, and that all through our lives we go on suffering from cold and pneumonia, from mastoiditis and the sinus troubles, and a thousand and one things which develop out of the common cold, to say nothing of the inherent weakening of the physical structure by these repeated assaults upon ourselves, but more particularly upon our children and our women, you realize the gravity of the common cold.

Do you realize that 10 days of every man's, woman's and child's activity a year, on the average, are lost throughout this country? It amounts to more than a million years of activity annually. The loss to agriculture, industry and all business activities is some 700,000 years of working time, through the incapacitation of 15,000,000 workers in this country.

Dr. Mayo tells me that 90 per cent of infant mortality in this country is directly or indirectly traceable to the common cold. I have consulted not one but at least 30 of the leading physicians and doctors of this country, and we have asked them what percentage of their practice is attributable to the ravages of the common cold and it has ranged anywhere from 60 to 80 per cent—never below—and this after going back and looking over the record of the charges on their books for a period of time.

I have dropped dyes; I have dropped everything, to lead a fight to repair the neglect of our years and see if we can't do something as men, as fathers, as pharmaceutical manufacturers and as doctors, responsible manhood of this country, to beat back the enemy that is weakening mentally and physically our children, that is carrying them to their graves or making them produce weakened children for future generations.

And so I come here to you today to ask you if you won't appoint a committee—a committee of fighting men who will cooperate with the Chemical Foundation and see if we can call in the doctors, and see if we can't call in the great research institutions of the country, see if we can't call in the great industrial plants of the country, who are losing so much, and see if we can't, on the style and form of the organization set forth in our "Drug Book" begin to make an assault upon this great evil.

Can the people who discovered insulin not do anything; can the people who stamped out diphtheria do nothing; can the people who have stamped out scarlet fever not do anything? Look at your achievements! What is the problem? It is nothing. It isn't any problem hidden in the blood; it isn't any problem hidden in the tissues. It is an open problem. It is admitted that it is all bacteria, and that bacteria assault an open space—our nose and throat and the respiratory tract. And you say you can beat that bug.

We will provide the money, except that I expect you will be ashamed to ask us or let us do it. We want your knowledge and we do want your cooperation. All these things of accomplishment that I have mentioned to you have been expressed by the one word "cooperation," humility of the individual worker, and willingness to cooperate with the overlapping sciences and the overlapping mental developments which go to make an upstanding fighting force. Eastman Kodak Company, when they made their 2,000 fine chemicals, cooperated with 60 universities throughout America. We have built over $200,000,000 worth of chemical laboratories in the last five years in America, and they are all hungry to be set at work. They are all hungry to introduce into their halls the fire and enthusiasm of new discovery.

Hundreds of millions have been given by wealthy men throughout the country, and you know very well that nobody ever went to the wealth of this country with a proper and decent and sound program, that they weren't ready to supply the funds to carry it out.

The medical profession which has been awakened, as you know, in the last 10 years in the relation of chemistry to the development of its science is in a full spirit of cooperation.

Somebody must take the lead, and I am going to ask you to take the lead with us. I am going to ask you to appoint a committee, with power to act. You need not vote any funds. We will provide the funds. And the part of it that may become a proper charge to you will in the future await the discretion of your acceptance of that burden.

SOME PROBLEMS OF RETAILERS [1]

R. R. RAU

Mr. Rau is Managing Director of the National Retail Furniture Association, Chicago. He gave this address at the Fifth National Retail Furniture Institute, Grand Rapids, Mich., Jan. 18, 1927.

I have been asked to tell you just a few of the things that the National Retail Furniture Association has done and is trying to do for furniture dealers. A good deal could be said about the cost of doing business. The National Association is doing what it can to help you. We are not only issuing bulletins giving you expense averages for various sized stores, but we have also put out for your benefit, after a very careful and long research by the Bureau of Research of Ohio State University, a book called, "The Uniform System of Accounting for Furniture Stores." We have distributed something like two hundred of these books during the past five months.

Many of you may be interested in the subject of collections—whether your collection percentages from month to month are what they should be. We have such information at our command, and we are always glad to serve our members.

We had a committee study instalment selling, and the report of this committee is available to any of you who want it. Naturally it will tell you that selling furniture on the instalment plan is all right, but it gives you some of the problems and covers some of the points which may be bothering you in relation to the broad problem of instalment selling.

The job of reporting furniture store income to the government is one that has to be performed every year, and a good many dealers find it rather difficult to keep straightened out on this thing. We take a great deal of pride in the work that the National Association did in putting into the 1926 Act, Section 212-D and Article 1208. Those two, we think, straighten out pretty well the reporting of income by furniture stores doing a time-payment business. Some of you perhaps were visited early last year or in the fall of the year before by revenue agents and told you would have to change your books, your method of reporting income, and go back to the old basis and be reassessed therefor.

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[1] By permission of the author. Reprinted, with permission, from the *Proceedings* of the Fifth National Retail Furniture Institute, Grand Rapids, Mich.

Here is a small dealer in a town not so very far away, doing a business of $200,000 volume, assessed $15,000 for an individual year because of this working at cross purposes by the Board of Tax Appeals and the Department of Revenue. Now all that has been straightened out. We got into this thing pretty thoroughly and we would be glad to be of any service we can to you. We have tax attorneys in Washington and Kansas City at your service at all times, and a good deal of information in our files on that subject.

One of the big jobs, of course, in an association in any field is to handle contacts with the other branches of the same industry on such subjects as trade relations. We are working on that constantly.

One of the things that is up before the furniture industry today is an investigation on furniture rates, carload minimums, packing, etc., by the Interstate Commerce Commission. They tell me this is only the third general investigation of rates on a given commodity ever ordered by the commission. It therefore assumes formidably important proportions for the dealer who pays the freight. As the thing develops you may not think it is so important. Freight rates cases which, in days gone by, have been handled by the manufactures, in the present instance should be handled in the same way, you may think. That may be logical but we don't think so. We think that the dealer has his side of the case, and it is an important one and a separate one from that of the manufacturers. If you could realize what there is to the making up of freight rates you would understand that after the thing is passed the case is absolutely hopeless. That is why the National Association right now is tremendously concerned and is involving itself in this important matter. The dealers are the contact points between the furniture business and the public, and the investigation is ordered by the commission "in the public interest." The dealers of the North, East, South and West do not compete, whereas all factories and districts of furniture manufacture are in competition in all parts of the country.

There is one other thing. In all rate hearings that have been held on furniture in times past, the railroads have made this accusation: The spread between the price the dealer pays and the price that the dealer charges the public is so great that a matter of ten or fifteen cents on an individual article is so small that it wouldn't affect at all the price the dealer charges the public. In other words that spread can stand a rate increase, they have claimed. We don't think that is true, and it is going to be less true as competition becomes keener and the pressure to keep prices down to the very minimum becomes greater.

While speaking of these things, I want to invite you again to take advantage of the National Association's freight auditing service. We audit freight bills for our members and returned last year something like $5,600 in overcharges, through the handling of loss and damage claims. We do that on a very minimum and non-profitable basis, and I am sure if you are members of your local associations you can almost get back the membership fee by taking advantage of this service. Only 208 dealers took advantage of that service, but we returned an average of a little more than $27 per dealer. That is not something to be passed over lightly, especially when all you have to do is wrap up a bundle of freight bills dating back from three years to date and send them on to us.

Another thing which may not seem important to you in passing, but which becomes tremendously important if you are ever involved personally, is that of wood designations and the descriptions of furniture you use in your advertising. A good many of us think that the phrase "mahogany finish" is all right and that "walnut finish" is all right. But there are a few people around the country who think otherwise, and they are hired to tell us they think otherwise, and that it is not in the public interest to say "mahogany finish." The National Association formally signed the "wood designations" code promulgated by the Trade Commission more than a year ago, but after careful study and attempts by dealers to use them, we found they were not so good, and as a result withdrew our signature. We are now working to get them put on a reliable basis.

How many of you operate in towns where the "weeping widow" prevails, who says that her husband has died, and she is selling her furniture to move to California or Florida or some place? You investigate and find that it is new furniture, just a guise to do new business. It is becoming more prevalent, we find, even in some of the smaller towns. We are just completing an investigation of the city ordinances, state laws, and other methods to fight this kind of competition. If you have operators of this sort—fake flat operators, etc., write to us and we will be glad to give you information.

Just one more subject: the slogan for the industry, "Your home should come first." Most of you know that this slogan was only brought to the attention of the furniture trade in a large way last May. Since then, out of our office alone, we have distributed more than 700,000 pieces of matter with the slogan on it. We are quite proud of that, but I think the furniture dealers themselves should be very proud because it shows an enthusiasm on their part and a willingness on their part to go along with anything which will make for a better furniture business, and a better furniture industry. That of course was the reason back of the adoption of the slogan. A good many of you here are using the slogan in every way you possibly can, but there are many other ways I am sure in which you can use it if you just sit down and think it out. National advertisers in the furniture field are taking up the slogan. You will find the slogan in 1927 in the national advertising of quite a few manufacturers. We are getting it registered so it will be a slogan for the furniture industry and not for the real estate or the building contractors, etc.

The slogan has been used by all dealers in Richmond, Virginia, cooperatively promoting a contest in the schools, and effectively used in Minneapolis in the same way, and so on around the country. It has served as a center of interest for the furniture industry in local communities to get together and promote the bigger idea of better homes and better furnished homes.

Mr. Mehornay mentioned yesterday the importance of stressing the renaissance of the home, refurnishing of the home, and I think you have got to do more of that as time goes on, if you don't want the industry to lag behind. The industrial leaders in the country will tell you that the biggest thing today is not competition of one man with another in the same line of business, but it is a competition of industries; the automobile industry versus the furniture industry, for the consumer's business, and so on down the line. As that idea grows and they get more money out of the consumer there is going to be just that much less for the furniture dealer to get for the home.

Newspapers can be sold on the idea that by giving some prominence to the home and the furnishings of the home, they will get back dollar for dollar or maybe two dollars for one dollar of what they spend in that way. I want to mention particularly the good work that the Kansas City dealers have done. Last year in the "Kansas City Star" they obtained forty-eight full pages of advertising of furniture, and paid not one cent for it. Inspired by that, dealers in other cities have obtained similar cooperation from newspapers.

It would take at least half a day to discuss intelligently the many activities of the National Retail Furniture Association,—all based on problems before furniture retailers. It would take several days, of course, to discuss all problems before furniture retailers, even briefly. What I have attempted to do is merely to give you some idea of the way the National Retail Furniture Association is proceeding, in the interest of its members.

THE PROBLEMS OF THE FIRE COMMISSIONER[1]

WALTER R. HOUGH

Mr. Hough, President of the Board of Fire Commissioners of Baltimore, made the following address at the meeting of the National Fire Protection Association, Chicago, May 14, 1925.

It is my privilege today to address you on a subject which I consider vital to the best interests of the larger communities of America as relating to fire department service, as it covers both fire fighting methods and equipment and fire prevention work under control of fire departments. We are gathered here today to consider whether a national organization of fire commissioners and directors of public safety in control of fire department service in their particular communities, as a section of the National Fire Protection Association, would be a constructive move, and, if so decided, to discuss the proper measures to be taken for the formation of such a group. In its inception, the idea was advanced that the organization be confined to such officials as represent fire departments in cities of more than 50,000 population.

It may prove of interest to you to know the origin of this movement. The idea was born at a meeting of the Fire Waste Council, held under the auspices of the Chamber of Commerce of the United States, in Washington last fall. As one of those who had been associated with the organization of the national drive on fire prevention by the Chamber of Commerce of the United States, which has achieved remarkable results, I have been honored with an invitation to attend and participate in the discussions of the National Fire Waste Council, which is made up of delegates from such important national groups as the Railway Fire Protection Association, the National Association of Credit Men, the National Fire Protection Association, the American Institute of Architects, the International Association of Fire Engineers, the National Electric Light Association and other organizations which have been leaders in fire prevention work individually.

At the fall meeting there was discussion of a number of subjects and plans for mitigation or prevention of fire hazards which would undoubtedly have been of intense interest to any fire commissioner in this country. As a result of my observations at that time, I took the floor to ask whether it would not be possible to include fire commissioners in those invited to future conferences.

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[1] By permission of the author. Reprinted from the *Proceedings* of the 1925 annual meeting of the National Fire Protection Association.

Mr. Franklin H. Wentworth, secretary of the National Fire Protection Association, and presiding officer of the National Fire Waste Council meeting, very properly pointed out that because of the nature of the council this would be impracticable but that, if the commissioners of the United States were organized, they could appoint delegates to the meeting. I was then requested to study some plan for action, and the result of subsequent correspondence, after I had received the approval of the idea from several other commissioners of large cities to whom I wrote, was consideration of the matter by the executive committee of the National Fire Protection Association, and the decision to invite the fire commissioners to meet in Chicago, during the convention of the National Fire Protection Association, to discuss the subject and decide upon a course of action.

That, gentlemen, is the groundwork, and the rest is in your hands.

Personally, I see great possibilities for such an organization. I have put in nearly seven years as a fire commissioner in my own city, where the lessons of the great fire of 1904 taught the city authorities to be liberal in appropriations for fire department development. In those years every important recommendation made for fire department betterment has been financed by the city authorities, and yet, whenever I make a trip to some other large city and spend time conferring with a commissioner of that city I gather new ideas for development of both fire fighting and fire prevention. Could this group grow, and I can see no real obstacle to its growth, to a point where a majority of the larger cities are represented at annual gatherings, I, for one, know that I could assimilate much information that would aid in solving home problems.

For instance, we have in force certain regulations and practices which we now consider as the best possible. Had the Board of Fire Commissioners of Baltimore at its disposal the information and knowledge gained by sister cities with like problems, I realize that there might be other things which we could do to improve conditions.

May I mention to you just a few of the many, merely to illustrate that while we have endeavored to improve conditions, there is no assumption of self-satisfaction that some other city has not tackled and settled the problem in more competent fashion.

Take for instance the question, vital to every large city, of regulations covering the handling of gasoline on the public highways or in filling stations and garages. I am prepared to file with this conference a copy of regulations adopted in Baltimore, and at some future conference I would like to see commissioners present similar regulations in their own cities in an effort to reach some standardized procedure that would probably be many fold more effective than the plan in my own city.

Then again, how valuable would it be for commissioners, especially those from cities which have adopted the national standard thread for hose connections, to discuss the feasibility of inducing other cities and towns near their own to adopt the national standard thread. In the great fire of 1904 Baltimore learned a severe lesson, when not a single fire company coming to our aid from numerous cities and towns as far north as New York and as far west as Harrisburg, could couple to our plugs, nor could they use their hose to replace the great quantity owned by the Baltimore Fire Department which had been destroyed in the early hours of the fire. And yet, gentlemen, it was only this year, that Baltimore undertook to standardize its hose and hydrant connections, and Washington also made the same move, creating conditions where the two cities best situated to give first aid to each other can go into action without recourse to adapters.

Of course, some commissioners have problems that are not faced by others. We of Baltimore, for instance, had one with oil coatings of pier and wharf supports due to the dumping of oil bilge, etc., and the story of how that was improved in Baltimore might be instructive to others. On the other hand, we of Baltimore could undoubtedly learn much from other cities which have tackled and corrected this condition. Baltimore has an ordinance controlling dumping of oils or other flammable liquids into the harbor, and also regulations for the screening of stacks of coal burning vessels.

As a fire commissioner I frequently awaken to the fact that conditions arise in other cities that have their counterpart in Baltimore, but where there has never been a full realization of hazards. It required three hospital fires, in three separate cities, all caused by, or aggravated by, flammable, or nitro-cellulose, X-ray films, before we of Baltimore decided to check up our hospitals on this danger and draw regulations for proper control of film storage. When we did secure a survey we were startled to find that several hospitals had large quantities of flammable films not stored in vaults or properly vented cabinets, in some cases being handled in pasteboard boxes, stored on wooden shelves and at times within a few feet of heating apparatus. I can make our check on the Baltimore hospitals available to my fellow commissioners should they desire it, requesting only that the names of the institutions be held as confidential, especially as conditions in most of these have already been corrected, or are being corrected, under regulations prepared by the fire department and sent to each of the hospitals for compliance.

Only the past week I was talking with the director of public service of a large city who was complaining of private automobiles following fire apparatus and parking in the vicinity of fires in such a way as to prevent the proper placing of apparatus answering second alarms. This man is a live official, but he did not know that in several cities of the country, including Baltimore, there is a law preventing such conditions. Frankly, the Baltimore law, while a great help, has its weak points, and I feel that a discussion of this subject as a whole would be highly beneficial.

The practice of fire departments of large cities in relation to alarm service, the direction of fill-in companies, the nature of reference cards, etc., is so diversified that a discussion based on the experience of larger cities would undoubtedly do much to standardize and improve conditions.

One of the most important subjects for fire commissioners to consider today is inspection work and fire prevention work under a bureau directly in control of fire commissioners. I know of no subject of more vital import in the reduction of losses. To extension of inspection work and education of the public in fire prevention, officials of the fire department of Baltimore attribute the fact that in 1924 our fire loss totaled only $1,888,235 as against a five year average for 1919 to 1923 inclusive of $2,908,705. It is also a striking fact that while the total number of alarms has increased from year to year, due to growth of the city, increase in automobile and gasoline handling hazards, and to the education of the public always to pull alarms instead of attempting to fight fires by individuals or plant brigades only, the number of alarms in the business areas, which are under intensive inspection and correction by the fire department, has decreased.

I feel that Baltimore could learn much from a study of the experience of other cities in fire prevention bureau and fire prevention inspection work. Recently a fire marshal and the mayor of a large city, requested me to prepare the organization plan of the Baltimore Fire Department as to its fire prevention work, and I forwarded him a paper of comments and several exhibits. These can also be made available to others who are interested. I realize many cities may have a better system, and if I had been in position to know just what cities are leaders in that work, through discussions at such a conference as our own here today, I could have referred the mayor of the city in question to other cities, so that he could have the benefit of the most advanced thought in the country along that line.

Another subject of interest to all fire commissioners would be a discussion covering a comprehensive model fire prevention ordinance for larger cities. In Baltimore we found that we had a number of ordinances and regulations of both the building inspector and the fire department which overlapped and conflicted and which were entirely inadequate under many developments of modern conditions. Through a citizen's movement under the auspices of the Baltimore Safety Council, a branch of the Association of Commerce of Baltimore, a committee of experts was named to draw a new blanket ordinance. That committee has been working two afternoons each week for a year, its hearings being attended by all business groups affected and by the best engineering and other experts that could be secured. In handling this ordinance, the recommendations of the National Fire Protection Association have been given due consideration and study and at the same time careful study has been given to the claims of all business interests, so that the ordinance will be a practical one from a fire prevention standpoint and yet not go too far and unduly hamper normal business activities and practices. The plan has been to incorporate the ideal in law where the ideal can be secured without undue hardship or restriction of business, but at the same time to recognize that certain hazards must exist in modern business conduct which should be controlled in a reasonable way. The experience of Baltimore in drawing this ordinance so that it has the backing of the business interests and the public in general, and the experience of other cities which are undertaking like work, would be a most interesting subject for discussion by the progressive fire commissioners of this country.

In closing I would like to say that a frank discussion of our problems would be the best thing for all concerned. If I am wrong in my thought that good will come from an organization of fire commissioners, I would like to be told so in most forceful style. If such an organization is a constructive thing, I would urge you to endorse the move and take part in it with every energy; if the idea is impracticable, useless or damaging, then we should drop it.

Thanking you for your patience in hearing me to such an extent, I now leave the question of the creation of a fire commissioners' section in your hands.

CONDITIONS OF PROFIT-MAKING MANAGEMENT[1]

H. S. PERSON

Dr. Person, Managing Director, Taylor Society, delivered this address at the convention of the Society of Industrial Engineers, Rochester, N. Y., Oct. 17, 1928.

I desire first to express my appreciation of your courtesy in inviting me to attend this convention and participate in its proceedings; and second to congratulate you on the organization of your program. It is important that we do not cease inquiry into conditions of waste-saving and profit-making, for, if we are persistent and ourselves grow in response to the revelations of these inquiries and come to have better and ever better conceptions of what is meant by waste-saving and profit-making, our work cannot fail to be of constructive value to industrial society.

Better and ever better conceptions of profit-making management! The first thought that comes to mind when one reads the title which you have assigned to me is this: conditions of management are continually changing; profit-making, the objective of management, changes as well and its concept must from time to time be redefined; and the procedures of management must change in response to changes in conditions and changes in concepts of objectives.

If we look upon social processes as manifestations of man's effort to adjust himself to changing environment—changing chiefly as a consequence of man's own activities; if we realize that business enterprise and management are but elements of these social processes; then we must realize also that any particular objective of enterprise, any particular concept of profit-making, and any particular scheme of management are likely to be only temporary—a step in an evolution toward other concepts and forms of management which themselves will be only steps in a further evolution. For this reason the highest purpose of any group dedicated to the promotion of better management, as is yours, is not to look upon any concept and procedure as fixed, but ever to be inquiring into the direction of the evolution of new concepts and procedures.

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[1] Reprinted, by permission of the society, from the Society of Industrial Engineers, *Bulletin,* January, 1929.

Let us consider briefly some of the changes which have taken place in conditions of management, in practical concepts of profit-making, and in management principles and procedures.

There are a few in this audience who can remember the beginnings of the management movement fifty years ago. That movement grew out of a consciousness of new industrial and managerial problems—a consciousness which found opportunity to become articulate in the forum of the American Society of Mechanical Engineers and in the engineering journals which were then beginning to be published. Those new problems were the consequence of a second stage of the industrial revolution characterized by the beginning of large scale enterprise as we know it today. Before that time the United States had been a pioneer community engaged primarily in exploring, discovering, appropriating and exploiting a vast area rich in raw materials, and its industries represented chiefly small plants engaged in the primary steps of conversion of such resources. Enterprises had been small in size, for the country was not one great market but a group of small regional markets, and the size of an enterprise is limited by the size of its market. But during the quarter century following the Civil War railroad construction united these small regional markets into huge regional markets, and with respect to some commodities into a national market. This larger market gave free scope to the intensive development of engineering which had been stimulated by the Civil War, and production capacity increased with great rapidity by the building of larger and larger plants equipped with new machinery manned by larger organizations of personnel.

These larger plants, and larger groups of personnel which had to be supervised, created problems of management which had not been known before, and this situation generated the management movement. This movement during its first stages was concerned with details such as differential wage systems, cost accounting, system and organization, chiefly as unrelated aspects of management and not as part of an integrated system. It was not until the movement received the impact of Taylor's experiments and thinking that management was much thought of as a whole susceptible of expression through a logical system of procedures which in turn are susceptible of interpretation in a body of principles and a philosophy of management.

The period of the development of American industry and of the management movement from the Civil War to the World War was one of great change in numerous details—in the number of industries, in the number and size of plants, in the characteristics of consumer demand, and in problems of management arising out of all of these; yet there was one characteristic which remained the same throughout the entire period. It remained a period of pioneer industry, characterized by gradually rising prices and a sellers' market.

Now this is of particular importance to us in consideration of the topic which you have assigned to me; for this dominant characteristic of a sellers' market conditioned our point of view toward management, created boundaries to the area of our vision of its problems, defined for us such concepts as those of profit-making and waste-saving, and established mental and physical patterns of conduct in management which persist in remaining more static than the conditions out of which they emerged.

Since the World War we have experienced the radical differences in conditions presented by a sellers' market characterized by observable changes in social customs and in demand, by the nature and extent of production facilities and by methods of organization being devised to cope with the new conditions. The differences are great enough almost to warrant our characterizing this period as a third stage of the industrial revolution in the United States. In the second stage we progressed from many small regional markets to a loosely knit national market; in this third stage our national market is becoming more firmly knit together by a more efficient transportation and distribution system. In the second stage there was suddenly available a greatly increased consuming power and consumer demand, which kept ahead of production capacity in practically all lines of industry; in this third stage there is greatly augmented consuming power, but it is not ahead of production capacity in many lines of industry, and has set up, as Mr. Hudson has told us, a competition among industries as well as within industries. In the second stage there was an intensive application in industry of an engineering technique, called into being by the Civil War, and increase of production capacity by the invention, design, construction and installation of new machines. But these were chiefly multiple-purpose machines and few of them were large. In this third stage there is another intensive application of the physical sciences and engineering technique, called out by the requirements of the World War, and the designing and utilization of machines, which are huge in size, powerful yet delicate and precise in their functioning, many of them single purpose and operating in series, and altogether responsible for a tremendously augmented production. In the second stage there was the emergence of the then relatively large but now relatively small plant and organization. In this third stage then is the plant requiring an organization of tens of thousands of workers. Such contrasts between the second and this third stage of the industrial revolution might be extended, particularly with respect to resultant changes in relations between the state and industry, and in relations between employers and employees, but I have specified enough to impress you with the far reaching nature of the differences. Now let us consider changes in the concept of profit-making.

There is a standard concept of profits and a standard definition given us by our elementary texts in economics; namely, profit is the difference between total money income and the expenses of production. This definition focuses attention upon the difference between money income and money outgo—between receipts and expenditures—and was sufficient as a simple and consciously incomplete but practical concept of profits in the earlier conditions of industry characterized by rising prices and a sellers' market. When demand is ahead of production capacity, and inventories tend to be limited, when the values of inventories tend automatically to increase, when one believes one has reached perfection in machine design and construction, it is fairly safe to make one's practical working definition of profit the difference between money income and money outgo. And yet, as we look back, it was not safe for many individual plants which were marginal in their industries and marginal in their methods of management. But on the whole it worked fairly well. In a pioneer industry exploiting vast resources for a rapidly growing population and a more rapidly increasing consuming power, it was sufficient.

But sometime during the progress of the second stage of the industrial revolution industry came to realize that a new concept of profits was essential; a concept less simple and with more conditions. Accounting and annual statements began to take more account of income and expense projected over a longer period—income as including income obligations as well as money income, and expense as including expense commitments as well as money expended—and included in this concept was recognition of the necessity of careful upkeep of equipment, provision for depreciation and reserves for bad debts and other incalculable replacements of capital. In other words, as enterprises became larger and expended greater amounts of capital in fixed forms of plant, machines, tools and materials, and as variations in consumer demand came to play a greater part in industrial processes, industry found it necessary to enlarge its practical working concept of profits as that ultimate net surplus remaining after all these contingencies in capital depreciation have been provided for.

And today the practical concept of profits is being extended to include an even greater range of factors. The first simple concept looked at money income and money outgo; the second concept looked at money income, money outgo and preservation of the integrity of the capital investment; the third concept which is developing looks at all of these, but also at the preservation of the status and good will of the enterprise as a going concern—at obsolescence, conceived not only in physical but also in social and ethical terms. That enterprise which has invested five, ten, twenty-five or fifty millions of capital in highly specialized forms of plant and equipment which must be amortized over a period of fifty years or more, and which instantly lose their value—because highly specialized—if the product becomes obsolescent in actual use value or in consumer esteem, cannot consider its management as profit-making management on the basis of this year's and next year's surplus of money income over money outgo, but can consider its management as profit-making only if it so manages as to establish the highest degree of probability of a similar surplus in 1935, 1940, 1950 and many years later. Conditions of profit-making management today and tomorrow involve study of industrial tendencies, including social customs, technology and consumer demand; of relations of industry to the state; of relations between capital and enterprise, and between employers and employees; and all of the detail processes of meeting the requirements of future demand and future technology. These are the conditions of profit-making management in the huge enterprises and consolidations of enterprises in the twentieth century, and competing smaller enterprises must fall into line.

The new management cannot be that management of opportunism which has been so characteristic of American industry in the past. Opportunism can succeed on a sellers' market in pioneer exploitation of vast resources, for under such conditions the dice are loaded in favor of success. But under conditions such as those with which industry is now confronted, foresight, calculation and a control reaching into the future and based on knowledge of conditions and tendencies, must be dominant.

There will undoubtedly always be a plane of opportunism in industrial activity. As we acquire control of one plane after another and consolidate our power in the form of a scientific management, evolution of industry discloses another plane in which venturesome men operate opportunistically. Ford and General Motors and Chrysler are opportunistic on the plane of combination and integration; but nevertheless, on that plane we identify by the term operating management they are consolidating their positions in the form of scientific management. It is the scientific operating management which makes administrative opportunism possible. Whether scientific general administration can be achieved, remains to be seen.

It is obvious that these new conditions of profit-making management—so briefly and inadequately indicated—call for the development of an industrial engineering of the highest type. On the whole industrial engineering in the early years of the management movement was as opportunistic as the industry it was called forth to serve, and even today a large proportion of our industrial engineering is opportunistic in nature—interested in the petty detail as a thing in itself, concerned with the problems of today, and commercial rather than scientific in its motivation. It has not progressed as rapidly as the managerial problems of its environment have changed.

Therefore it is the responsibility of a society such as yours, and such as the one which through me you have made your guest at this convention, to strive to raise all industrial engineering and all management to the level of the best; that best which comprehends tendencies in the evolution of industrial processes, which defines its objectives, and which develops its technique to master the new problems.

That does not mean an attempt to make all managements alike in their objective manifestations—to make every management like every other in the details of its system of procedures—for every management situation is a problem unto itself. It does mean, however, the development of a standard method of approach to every problem; a method which utilizes every device of scientific method to ascertain and evaluate facts; which separates the fundamental and durable from the superficial and transitory and builds upon the former; which constructs policies and procedures for each managerial situation that respond to the requirements of the present and are flexible enough to be adjusted to meet the new requirements of change in the conditions of industry.

It is the necessity of controlled and directed adjustments in the management sector of social processes, to meet changes in social processes generally, that constitutes the justification of a management society. To leave these adjustments to chance is a social waste; to reduce this waste is a social service as well as a service to those individual enterprises which are helped to avoid the waste of error and of misapplied effort. Adjustments cannot be controlled by superficial endeavors on our part. We must be serious students and experimenters and must make the results of our studies and experiments available. We must inquire about conditions in the past, or study of the present will be shallow; we must inquire in detail about the conditions of the present, for in them we find our problems; but we must not neglect to inquire into the future, for it is usually an unobserved factor pertaining to the future which generates a problem in the present. And we must give as much attention to ideas and ideals as to other patterns of conduct, for they have always been and always will be important among the data pertinent to our problems.

PROFITLESS PROSPERITY[1]

E. ST. ELMO LEWIS

Mr. Lewis is chief of the staff on Merchandising, Marketing, Trade and Consumer Relations of National Services, Inc., of Detroit, which is an organization of counselors for corporations and trade and industrial associations. This speech was delivered at the twelfth annual convention of the National Sand and Gravel Association, Inc., Washington, D. C., 1928.

Business in many lines is in a peculiar position. There are entirely too many actually losing money, while there are too few that are making a profit. When we attempt to analyze from the available figures, we find a considerable divergence because of a lack of standards that give us a common denominator by which to make comparison.

There was never a time in the history of industrial America when there was less room for the ineffective organization. The significant thing is that such organizations as United States Steel and General Motors are making money, and the smaller organizations that are making money have some characteristics in common with such great corporations.

The great corporations making the large profits, like General Electric, General Motors, United States Steel, and their counterparts in other industries, are organizations that have placed themselves in a position to directly benefit by the application of the latest scientific knowledge to either the problem of production or sales or to both. I shall dwell on this phase of research, which is involved in the statement I have just made, later on in what I have to say to you.

On down the line, in all branches of industry, we find the big, outstanding, consistent profit-maker in each line of industry, commerce or business, doing substantially the same thing and benefiting by the same favorable items.

The day of the small concern that persists in thinking small about the big things of industry is rapidly passing away and the big industry with its rapidly developing tendency to place a premium on brains rather than mere money or mechanical equipment is becoming stronger and greater as the days pass.

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[1] By permission of the author. Reprinted from *The National Sand and Gravel Bulletin,* issue of February, 1928.

Great financial resources do not make a concern big in the sense in which I speak of it here. The only advantage great financial resources give to a great organization is the power it gives it to buy experience and brains and skill and to take full advantage of the latest developments in its industry or line.

Within the past five years the fore-thinking men among the smaller organizations have realized that in union there is strength. We have seen an industry that has become conscious of itself, under the leadership of men who realized that cooperation was the modern cure for combination—that if 500 concerns got together and cooperated in those essential things which made great corporations great; that is, pooled their knowledge and skill and resources for the purpose of increasing their knowledge and skill, they could exercise irresistible force in determining the tendencies of the industry—grow and expand.

The industrial tendency of the day is towards combinations into great units. The only way the single great unit can be fought is by the association of a large number of small units into highly corporate bodies.

That association will amount to little, however, if the members do not realize that they are associated for the purpose of doing for each other what the large unit does for itself. I mean that the association should furnish the super-staff of able, experienced technicians in finance, sales, production which every great corporation has on its payroll, for it is this staff that is largely responsible for its bigness and power. It is not the plants, in number or size; it is not its money strength alone—but it is these plus the directing minds that use these implements of war and progress in the industry that make it big.

There is a fundamental principle in military tactics that if you can induce the enemy to split into many small units while retaining your own force in the large unit, you can whip an army in detail which you could not possibly defeat in mass. An industry might very well learn many things from the tactics of war. If therefore, the units in an industry such as yours *become profoundly conscious of their common problems* they can do many times what any one of them could not do by itself. I shall endeavor today to take up some of the very definite things you can do as an organization for the common good.

Not so long ago a popular writer used the phrase which appears in the program as the subject under which I am to say a few things to you this morning about the sand and gravel industry. The phrase fairly reflects, if somewhat biting in its humor, the phenomenon of our present industrial situation.

The members of your Association, I am informed, have not been immune to the effects of our profit-eating prosperity. I have been studying many of the conditions surrounding your industry, read some of your committee reports, talked with representatives of organizations who are users of your product.

I trust that you thoroughly understand that I do not presume to come to you with any panacea for whatever ills, imaginary or real, from which this industry may, in the opinion of some, be suffering. May I ask you to think of me as coming here as an interpreter of the progress made by other associations representing other lines, yet having problems similar to, sometimes exactly like, your own.

In the past year I have talked in convention or sat in conference with many trade associations. I have talked to the Structural Steel and Reinforced Concrete Associations with respect to their specific problems. I mention them because they are catering to groups who are large consumers of your product and are affected by many of the same problems that affect you.

But let me state my position relative to yourselves and your problems. My very position as an outsider may be the best of reasons why I may talk to you.

It may not be inappropriate for me to ask you for a moment to recall your Bible studies. As a matter of fact, my position as interpreter and counsel has a rather long history. If you have read the June, 1927, issue of your SAND AND GRAVEL BULLETIN you will remember the address of Arthur D. Little before the American Institute of Chemical Engineers. In his talk, you will remember, he referred to that dramatic story of Belshazzar's feast. Belshazzar sat feasting with his thousand nobles in the great city of Babylon. The banquet was at its height when suddenly against the wall appeared the fingers of a hand which wrote on the wall above the great candlestick the momentous legend in a strange tongue and in which Daniel read Belshazzar's doom after soothsayers and astrologers and the genial yes-yes men who surrounded royalty, had failed to make interpretation.

Daniel was an interpreter of signs and portents, and while his interpretation in this particular case was not very pleasant, at the same time he interpreted and the king was forewarned.

The Bible has another story that is pertinent though not so tragic in its import. You will remember when Moses led the children of Israel out of Egypt, for a brief time he was camped on the Hill of God, where Jethro, his father-in-law, came to visit him. One day Moses invited (so the story goes in Exodus 18) Jethro to sit with him while he held popular court in the midst of the tribe. It took him all day listening to big and little, important and trifling cases. Then after they adjourned, Jethro who had been much impressed said to his son-in-law, "Why sit alone as a judge with the people all around you from morning to night?"

Moses explained.

Jethro then told him he was wasting a lot of time, working too hard, wasting his skill and judgment and ability on too many minor things when he should be occupied in much more important work of larger administration. Then, like a good counsel, he told him how it could be done, by the simple organization of his people into groups of ten, fifty, a hundred and a thousand, giving each group its own judge. Then Moses would get only the most important cases which these judges could not handle.

Moses accepted this counsel in organization and as the Bible says, "Moses listened to what his father-in-law said and did exactly as he told him."

Jethro was the first counsel in organization that I have any knowledge of. It might be well to call your attention to the fact that Daniel could interpret to a king even if he wasn't a king, and Jethro could counsel even if he had not led a host through a wilderness. Both were outsiders in every sense of the word, and yet they performed an office that was recognized as vital and important.

An investigation of one hundred concerns showed that only nine percent of the sales managers had been developed in the business. Less than two percent of the advertising managers had been with the company over three years. Twelve percent of the general managers had been trained in either the company that employed them, or a part of the industry, seventeen percent had been in the industry over five years and less than eight percent over ten years.

It might be interesting to find out how many of the managers of successful sand and gravel concerns were born with sand in their ears; but who, in fact, came into it from other, and entirely different, lines, with new ideas and suggestions that made for the betterment of the business.

If you have not read Mr. Little's address in its entirety I commend it to you. It is good for the soul of those who sit down to feasting, and is explanatory of the peculiar fact about most of the great leaders in industry, that when all people are full of optimism, they are quietly and shrewdly looking for signs of a coming storm, and when all people are depressed and gloomy in "blue days," they are just as calmly preparing for the sun that they know is beyond the clouds.

YOUR POSITION

You are part of a building industry which stands second in volume in dollars and cents among the industries in the United States—I am informed the Sand and Gravel industry represents an investment of $500,000,000—that your tonnage produces from 6 to 7 percent of the gross revenues of the carriers.

Yet you are not making money—or, if you are, you are not making enough. I know, of course, your "business is different." Everybody tells me that. Every line of business tells me that. That is the reason why you are different kind of men. (You can tell a Sand and Gravel man by looking at him!) That is why you have no costs, depreciation, obsolescence, no selling problems, no production problems, like all other businesses have. Yes, your business is *not* different! I have heard that "different" talk for forty years from over 400 lines of business—and it has always ended by learning how much alike business is—then we learned something.

Let's take a look at things for a moment. Let's take a look at ourselves as business men, and then at the tendencies of the hour.

For one thing, the opinion of economists is that the price level in general will continue to decline. That means as prices go down there will be a temporary increase of demand and that they will ultimately stabilize on the basis of the costs of the efficient operators—at a lower level—where only men who can produce at low costs, sell at low prices and make money.

Many times men seem to get lost in the maze of detail in their own business. That is why the most successful managers get away from the desk in order to give themselves a chance to take an airplane view of the business. I have had an opportunity during the past thirty years to study many scores of executives at work. They have been big as well as little men: very great successes, the so-so kind who play hide-and-seek all their lives with the red-ink, and the fellows who are chronic red-ink men.

I have seen enough of them to recognize certain earmarks of each kind.

The big man who has achieved the habit of success never shuts the doors to ideas, experience, knowledge, skill, no matter from whence it comes, nor how strange, nor how unwelcome it is. That new idea account with him is never closed. He is always searching for new things. He organizes to find them for the betterment of his administration, production, financing and sales, he organizes departments, laboratories, testing bureaus to search for, find and test new ideas. The big man is thus more concerned about the future, about where he is going, than where he has been. He knows that the man who is taking care of tomorrow has taken care of today, and only the past will take care of itself. These men are hardheaded men of vision.

The second type—the "so-so" man—wants to "leave well enough alone." He is impatient of new ideas. He squelches the innovator. He copies the advances of others and is always, even at his best, hanging on to the coat tails of progress. He saves the cost of research, he considers scientific men highbrow theorists. He is rather cynical about scientific tests. He thinks he can alter facts by sales talk. He scoffs at laboratories, sneers at standard cost systems, and hopes against hope that some way may be found to fix prices at a level where he can make a profit.

The third type is the man who quickly fades out of the picture when the high price, large profit era passes. At all times he is the great disturbing, uneconomic, dangerous factor in any industry. He is a theorist of the worst type. He has a theory that he can guess himself into a profit.

In your industry he refuses to join the Association. He thinks the big fellows want to get him in so they can trim him. He sells substandard products. He resorts to unethical procedure in handling complaisant contractors, architects and engineers.

He always cuts prices. He is a problem of education because no industry can get far toward stabilization until he gets in line with the fundamentals of right practice.

Every industry has these three types of operators. The problem is—can they be equalized upward?

The solution is one of education. There is the education by the process of showing them the advantages of following the practice that succeeds. This can only be done by demonstrating and comparing the success of right practice and the failure of wrong practice. Then there is the more drastic education. By passing on to the consumer a fair share of the savings made by right methods, the successful concerns make the failure of the wrong-headed operator more quickly certain, and at the same time stabilize the industry.

By educating the public to buy the right material, handled in the right way, the methods of the inefficient operator, if not immediately nullified, are made increasingly unprofitable.

Briefly, that is the foundation policy on which successful industries are handling the problem of these types of managers who refuse to play the game according to the rules.

There is a new principle at work not only in production, and in accounting, but in sales as well. Scientific fact-finding is taking the place of "by guess and by God."

Recently in transmitting a report on Markets made to 198 New England manufacturers, Mr. James L. Madden, Vice-President of the Metropolitan Life Insurance Company, reflected the principle on which modern business is working:

"The old, intuitive method of determining business policies is gradually being replaced by fact-finding, because modern business has become too complicated for guesswork or for rule-of-thumb methods. Progressive business has lifted a page from the experience of science and there is a growing realization that the formulation of successful management policies must be based on the accurate and thorough collection, organization and interpretation of facts. It is not surprising, therefore, to find a definite trend among progressive employers to supplant opinion, as a basis for business judgment, with fact-finding. As a result, the executive has essential facts which deal with the internal structure of his business, as well as information on external economic data which, directly or indirectly, may affect his operations."

When everybody uses the same set of old facts, uses them in the same way, they generally get the same result within very narrow limits of variation. But when some fellow gets at new facts, handled with new ideas, and in a new way, then the disturbance begins.

When radio came into general use several years ago the phonograph business dwindled so fast that the largest unit, the Victor Company, had to pass dividends before it could "dig in." The Victor had been a big dividend payer for years. One year it paid a 600 percent stock dividend. In 1925 the phonograph industry was on the toboggan. Today it has regained its lost ground. What worked the revolution?

Scientific research, a few highbrow engineers working in a laboratory, probably none of them ever made any part of a phonograph or ever sold one. But they "saved its bacon." They produced the Orthophonic, which, in a few months, entirely rehabilitated the Victor Company's balance sheet.

In 1925 the reinforced concrete industry cut into the structural steel field, displacing 600,000 tons of steel construction. Why? Because cement had been for years carrying on research work for the purpose of increasing the use of cement. The cement manufacturers have one of the largest funds for market research, propaganda and advertising among all the industries in the country. They go at the job of marketing scientifically.

Steel was in the hands of production men. They looked upon their product as a fundamental necessity, people had to use it. But cement proved a substitute.

Steel has wakened.

The structural steel people reorganized their association under the management of my old friend and former associate, Charles F. Abbott, and are staging a comeback. With over ninety-eight percent of the total structural steel concerns in the country (mark the percentage) the American Institute of Steel Construction is advertising to consumers (the owners of structures); carrying on educational work among its members, helping to train their salesmen; reformulating the steel sections of municipal building codes; educating engineers, contractors, architects; and working, as an industry, with public service and building commissions.

It is functioning as a sales as well as an engineering department for the industry.

The day of personal pull, as an exclusive method of building a business, is passing. Personality must have the goods, and the scientific man is determining what the goods shall be. That is the way to build good-will.

I might take the rest of the day to tell you stories of industries that are passing out of the hunch and guesswork era into that of the fact era.

Just a superficial study of the work of the Portland Cement Association, which stands in such intimate relation to your own industry—and I am glad to know that Mr. Allan's speech will be printed, for he has told you of the results of his association's work—I am sure, has opened your eyes to the possibility of a careful, scientific study of the technical application of a commodity to a market's possibilities. Please note that I say, "market's possibilities," because there, too, the cement people have applied scientific methods, to determine the possibilities of their markets. They have discovered entirely new uses for cement, thus broadening the demand. No hunch or guesswork there.

Hunch and guesswork are being cut out of the rubber industry. Rubber has become an important competitor and substitute for leather. Scientific research has cut the price of rubber from $3 to $1 or less per pound, and it has sold for as little as seventeen cents. Research has made great strides in handling rubber from the tree to the tire.

Why am I talking so much about scientific research? Because you are not going to be immune to the tendencies of this scientific age. The engineer is going to make more great changes in handling your product. He will cut costs. The chemist is going to make great changes in the standards governing the use of your product. You men who have been in this industry since 1910 only have to compare the things you did then, and the product that found a ready market then, with your research engineers' reports in Bulletins 1 and 2 on aggregates and on estimates, as well as Bulletins A, B and C, to realize the changes that have come.

They are but the promise of even greater changes. It requires no great vision to see the day, and it may be here all too soon for some, when present plants will become obsolete and beds that are today profitably productive will become unproductive because the improved standards will make them so.

Research is the price of stability. I have shown how greatly it may affect an entire industry in the case of the phonograph, and in the case of structural steel.

Research is the price of progress. I have shown this in the case of rubber. It might, with even more force, be shown in the case of fertilizers, artificial silk, dyes, building brick, coal, oil, gas, copper, paints (look what the nitro-cellulose developments have done to paints).

Again I ask you to think what research has done for you through the work of the Portland Cement Association.

So far I have asked you to think of the value of the results of scientific investigation of the methods of producing the product, and of standardizing it to meet market changes. For a few minutes I want to ask you to consider a newer phase of the application of the scientific method, to the study of markets.

The man who doesn't know where his market is going, cannot control profits. I think that is self-evident. We used to think we knew all about our market, just because we sold it. We are finding that we know too little. We don't know where all the profitable markets are.

We don't always know where the unprofitable market is, until we lose a lot of money trying to cater to it. We don't know what new demand may be developed until it is actually buying; or it lies undeveloped for a colorable substitute to develop it.

We don't develop our markets at the least cost. We don't find ou the facts about the buying habits of our customers and prospects, but let our salesmen guide us the easiest way for the salesman.

We don't know the real facts about the necessity for price cutting, depending entirely too much on the word of unprincipled buyers, and weak salesmen.

We don't reach the ultimate consumer with enough direct educational material so he can intelligently pass on the recommendations of his architect and contractor with reference to our product.

Time will not let me go into all of these.

It would pay your Association to carry on a market research on each of these definite problems. The results would eliminate many bad sales policies and practices.

Consider the investor who builds. Every day you estimate on specifications only to find that the architect and contractor have induced the owner to accept sub-standard material as "just as good."

The aggregates are just as important as the cement. In many cases a proper mixture, I am told, will save enough on the cement to pay twice as much for the aggregates, and get a gain in the strength of the concrete, which is important to the owner.

But who knows it? Why keep that fact a dark secret? Who is most interested in that? Is it not the owner and yourself? Why not tell him?

Your industry as a whole, no matter what may be the interests of the producers of sub-standard material, or other competing products, must always be on the side of the real interests of the users of your product. As you raise the standard of value to him you can raise the price, or at least get a profitable price.

That is fundamental.

But you must educate the owner. In order to do that you must find out what kind of person he is, how he thinks, what he thinks about your product, if he is thinking right about it, and where he is and how many there are of him.

If you do not know these things about your consumer, your ultimate consumer, you don't know much about your market. You are, without these facts, at the mercy of your contractor, architect and dealer. Your section of the country may be prosperous but you cannot take full advantage of it unless you know the condition.

Market research is one of the modern activities of all highly successful big organizations and industries. It fixes sales policies.

After an analysis of the market, a large metal furniture organization switched its sales accent from big contract equipment sold to contractors, to standard office equipment sold through dealers. Result: Stabilization of volume and price and profits.

After an analysis—a ball-bearing manufacturer investigated the market and shifted the sales accent from automobile equipment to industrial equipment and replacement. Result: Stabilization of volume and profit.

The steel research laboratories, the American Welding Society and the electrical manufacturing companies are developing the welding process so it can be applied to buildings. The machine gun riveter will be eliminated, new conditions of operation will follow. Some of them may affect you. Do you know?

Market research will show you the drift of demand, before it appears in sales. Everybody in the motor market research departments knew that Mr. Ford would have to scrap the Model T three years ago.

Chevrolet has announced its new model within 30 days of the new Ford, and in the meantime has been producing and selling its old model.

Research anticipates changes.

The consumer in the long run dictates what shall be done. Long before the sale, the consumer is unconsciously developing what he wants. The intelligent marketing man is constantly probing for these tendencies which guide and control the market in the making.

It is the job of the Association to anticipate. It is your part to place in the hands of the Association the funds and organization to anticipate the trends of the market, and thus prepare you to make a profit out of prosperity.

But research is not enough.

It is not enough that you accept and adopt the new ideas. The public must want what you produce: They must want the new things.

The public must tell you what it thinks. It must be interpreted to you. You must be interpreted to the public. It requires more than the ordinary advertising message. That will not suffice.

The research results need interpretation, the process by which the results and their value are explained to the laymen. It is the lack of proper interpretation that makes so many government reports of so little value to the layman.

Not so long ago I had an executive hand me three large volumes of reports from auditors with the remark, "I wish you would go over these and tell me what they mean, what I can do with them."

As Glenn Frank, President of Wisconsin University, recently said: "The future of America is in the hands of two men, the investigator and the interpreter." We shall never lack for the administrator, the third man needed to complete this trinity of social servants. And we have an ample supply of investigators, but there is a shortage of readable and responsible interpreters, men who can effectively play mediator between specialist and layman. The practical value of every social invention or material discovery depends upon its being adequately interpreted to the masses. Science owes its effective ministry as much to the interpretative mind as to the creative mind. The knowledge of mankind is advanced by the investigator, but the investigator is not always the best interpreter of his discoveries. Rarely, in fact, do the genius for exploration and the genius for exposition meet in the same mind.

Many Negro Mammies of the South can make a strawberry shortcake that would tempt the appetite of the gods, but they might cut sorry figures as domestic science lecturers. The interpreter stands between the layman, whose knowledge of all things is indefinite, and the investigator, whose knowledge of one thing is authoritative. The investigator advances knowledge. The interpreter advances progress. History affords abundant evidence that civilization has advanced in direct ratio to the efficiency with which the thought of the thinkers has been translated into the language of the workers.

This means telling the public.

The Sales Engineer Emerges

During the past five years great changes have occurred in the sales field.

A new type of sales-merchandiser has developed; he is called a sales engineer. To some, educated to look upon the salesman as an irresponsible, inefficient personality who has no use for a profit-and-loss statement and who is incurably negligent of the niceties of scientific formulae and procedure, to call a man a sales engineer is a conflict in terms. But he is here. By using the word "engineer" to include the sales manager who uses a scientific method in analyzing problems of sales, we have the sales engineer. I know the dangers of generalization, but I am on safe ground in this, because industry is full of proof. Up to recently, the salesman has not been an engineer, while the engineer has rarely been a salesman.

What do we see as a difference? A difference between the typical salesman and the typical engineer?

I would answer, in their differing attitudes toward the human factors that enter into the problem of sales. You cannot build a business on a theoretical abstraction. Life is not so simple. Human feelings, ignorance, caprice, intelligence, understanding, play as decisive a part in your industry as they do anywhere else.

In other words, it appears that we must learn a lot about the most human of business functions—selling—and salesmen need to study the fact-finding methods of the engineer (or accountant), if we would control our sales effort efficiently.

Science Comes into Selling

Times have changed, and they are going to change more rapidly and in greater degree. Consumers are demanding changes. Sales cost too much. The engineer and accountant have been sent into the sales department in order to find out why the truth about values was so often ignored by the public who followed the persuasive salesman, buying other less valuable things—because the salesman knew the public and could lead it. The engineer knew things better than people.

The old type Sales Manager, who wined, dined and entertained in various ways, boosted and "pepped," and roasted and toasted his men, has sensed a problem, too. He persuaded people to follow him, but he was not always selling the right thing at the right time. He is now finding that he has to study things as well as people. In many lines sales costs have risen beyond all records, and wiped out the factory savings of production experts. Production costs have decreased twenty percent while sales costs have gone up 300 percent.

So scientific methods have come into sales—by which the right thing is determined and the right people are led to accept the right thing—and thus the right thing finds its pre-determined market, the market which belongs to it.

This sounds simple, as it is, but the method by which it is accomplished is complex, because mankind is complex.

Let us assume, for the purpose of our talk, the work of a 1928 variety of sales manager who is a leader of men—a developer of their capacities—who has faith in his commodity and the job; i. e., knowing both better than the buyer knows either. He believes in his product and his company, and knows where, why, when, what and how it can be used to the greatest profit to the buyer. You will have to fill in a lot of this picture from your knowledge of your special conditions.

The sales manager must not blank the personal side of the problem of sales.

The salesman has often been a politician and gladhand artist, who trusted to a friendly "pull" with his customer, who knew little about the real merit of the goods he sold.

He could always sell the thing he didn't have for less than the other fellow, and he made promises of the impossible with an engaging indifference to the results that drove the financial department mad. That man is passing out of the sales picture.

In developing this new science of sales management, it is well to realize that we will progress with old organizations only so far as tradition will permit. "A man is a good deal like a tack; he can go only as far as his head allows."

Effect of Attitudes

What does an attitude mean? How can it influence? The attitude of management toward any problem is critically important. Analyze the effect of these attitudes. The production-minded industries make great improvements in production methods, but they generally sell on price, and rarely open up new markets or get the most out of old ones.

The furnace may be able to heat this room to 90 degrees. There may be plenty of coal in the cellar, as Mr. Roger Babson once said. If the janitor, however, thinks that 65 degrees is warm enough, or if he is ignorant, unintelligent, lazy, or indifferent, the tenant is likely to be uncomfortable. The furnace capacity or the supply of coal is not alone the measure of the heat, but it is the attitude of mind of the janitor that controls the temperature of the house. His attitude controls the physical comfort of the tenant.

Hasn't the dominant idea in your plants been one of—production? How many men have you on your staffs thinking, planning, and testing new and better ways of selling—new and better ways of marketing—making sure that the buyer got what he should have? How many? How much scientific thought have you given to your marketing problem?

It happens that I have been in two specialty lines—the cash register and the adding machine. Each of these has for years been spending over a quarter of a million dollars annually studying the developing tendencies in their markets. Even now they have new ideas that will not be marketed for ten years. The point is that they are consciously developing and anticipating their market for the years and decades to come. Even now they are training their men in how to meet and guide this demand.

You may say, "These things are part of the sales job. When the demand arises we'll meet it." Granted, but doesn't the whole organization from president, board, officers, down to the office boy exist for just one thing—*to create demand? To make demand? To create more demand in order to have more to produce?* Don't you know that demand for kinds and types of product can be created—that it can be controlled?

You can create an attitude of acceptance—indifference or hostility on the part of the owner, engineer or builder.

The condition of the buyer's mind determines your possibilities, and his mental condition is fixed by education, religion, creed, social environment and intelligence. It is only within the past ten years that we have discovered the psychological panic in our economics. We are beginning to control this condition of mind.

It is a man's mental attitude toward the cigar problem and the dollar bill in his pocket which determines whether he buys a ten-cent or a fifteen-cent cigar, or a pack of cigarettes.

"Over-production," "under-production," they used to say controlled the prices and demand. But what causes over-production or under-production? Bad education—poor knowledge of conditions and fundamentals on the part of producers. We want preventive remedies, not merely cures. "The crops—the money market—that's the reason," said others. Farmers over-crop. Why do they over-crop? Farmer minds in contact with realities or falsities?

You see how important people, and how much less important things, are becoming? People, after all, make trade. Their condition of mind, which governs their freedom of choice, is responsible for most business. A man with $10 in his pocket is often a better prospect than a man with $100 in his pocket. It depends on this state and attitude of mind.

To me that attitude of mind is one of the most vitally important things in your business. The consumer of *your* product is not in the best frame of mind about your product and your outlets. Standardization of service will have to come among the producers and there will have to be more education among the consumers.

Autos and Mental Attitude

The automobile business has been built on an attitude of mind. It has been the attitude of mind of the American man and woman toward the motor car that has made it difficult for the old-style economists to foretell the saturation point, that fleeting point which has for nine years eluded the statistician. The American man and woman were willing to forego clothes, shoes, jewelry and many other things for an automobile. The attitude of mind of the American family settled the motor sales problem and unsettled the figures of the statistician. The forces of advertising and selling helped to create that attitude of mind. The concrete road builder made his sales to an auto-minded public. The roads were built and the auto sales continued to leap. The statistician had to begin all over again year after year, because of the changing mental attitude of the consumer.

Thus, it is important for any manager to realize the power of those psychological factors that lie outside the money volume, and to keep in touch with the tendencies—the ebb and flow—of public acceptance of any product.

There is a large present market, and a larger possible market, that depends on the freedom of choice which dominates all markets. This freedom of choice is conditioned and measurably controlled by the state of mind of the buyer, and this state of mind is governed by the degree of education and information of the buyer and the service and sales ability of the seller.

The attitude or state of mind is moulded by advertising and sales and service.

Think, for a moment, what has happened in silk stockings! The sale of silk stockings has increased 98,500 percent from 1899 to 1921, much to the discomfort of cotton and wool manufacturers, but to the joy of the rest of mankind! That did not happen without direction. The cause was simple. Propaganda—fashion—advertising—sales.

The sale of bathtubs has increased 1000 percent in the last twenty years while soap sales have increased 250 percent per capita in the same time. That did not just happen! Look into the advertising pages for one reason. The governing of consumption by the attitude of mind is shown in the varying standards of living. It requires eight times the amount of soap to keep an Englishman as clean as he wants to be as it requires to keep a Russian as clean as he is willing to be.

Education of the Market

After all, the problem of educating one's market, I think you will agree with me, is the problem of the seller. It is not the customer's fault if he doesn't buy or doesn't buy what you want him to buy.

Our whole American distributing process accents *salesmanship* and not *buymanship,* no matter how greatly the latter has developed within the past ten years, largely because the successful seller has objectified his effort, that is, earnestly endeavored to *understand the real needs of his market* to a point where he knew much more about those needs in relation to the product he was selling than the buyer did himself.

In short, we must achieve this sales attitude of mind toward the problem of sales before we can hope to get greater results from our merchandising.

Why not let Service and Quality do the job? says the 1910 sales manager.

In order to clarify our standpoints, let us at this time set down a few fundamentals:

A business is financed, a plant is built, and an organization is developed for the purpose of producing something that can be sold at a profit, and then selling it. Therefore the creation of an efficient selling process is the ultimate purpose of an organization, and if it fails there, the organization fails. The real cost of production is the cost of producing a profitable sale. The vital importance of the selling process is obvious. Selling a valuable worthwhile service is the only reason why a business exists. We sell to a crowd of people that we call the Public. That Public doesn't have to buy of us. That Public is a peculiar thing. It is busy, fickle, indifferent, but exacting—with hates, prejudices, whims. We know less about this Public than we should. We do know, however that:

1. It is a fallacy that the public will automatically seek the best. Fashions prove this.

2. It is a fallacy that the public knows the difference between price and value. Stock market securities are an example.

3. It is a fallacy that the public will automatically reward enterprise and service. The public must be told and sold before it will extend rewards.

4. It is a fallacy that the public knows what it wants. It has to be taught its desires and needs except the most elementary ones.

5. It is a fallacy that the public will demand over any great length of time what it is not constantly reminded of. Men die and forget: Men are born who never knew.

6. It is a fallacy that value can be anything but a "personal estimate of desirability on the part of a buyer." Very important to you.

7. It is a fallacy that the public will surrender its freedom of choice to any committee or board of scientific experts to determine what it

should buy; or to say what are necessities or luxuries without educational propaganda. Remember the war; look at prohibition.

Therefore, we have advertising and sales departments with their educational methods.

SELLING IS AN ESSENTIAL FUNCTION

Selling is an absolutely essential function in all enterprises depending upon public support. During the next decade it will be the major problem of industry, because the solution of distribution problems has lagged behind that of production problems. It is a very human process, because, no matter how much sales may depend on price or quality and economic conditions, the sale is largely guided and controlled in any business by those qualities which I shall generalize under the cloudy phrase of "personality," which can tip the scale in favor of a particular firm or line of goods in many cases.

The public must be educated to know values, i. e., informed and instructed. You cannot ignore this necessary educative process. What does it matter what the price of an article is if I do not know I need it? It matters still less if I do not *want* it.

THE PROBLEM OF THE SELLER

"But I am doing this. I am educating my buyer," says the sales manager. Let us see if we can suggest some ways in which we might do it more effectively.

Having thus sketched the approach to the problem, and developed the clear indication that the degree and extent of the education of the market determines the demand, let us see how, in a definite sense, we should, in the light of the best merchandising experience, approach the problem of developing a market for a better product and stabilizing our business.

QUESTIONS OF PROCEDURE

I think it will help to clarify our thinking and planning if we ask ourselves a few more questions:

Have you ever analyzed your territorial sales possibilities and contacts among dealers, and by towns, for determining available business opportunities so that you know more about your prospects and necessary contacts than any salesman?

Do you know anything about the market in the making?

What ideas and changes are being discussed?

Do you really know all your competition? The names, locations, and management policies? The true character and real value of their lines, selling and business methods and contracts? Management personnel and representatives? Advertising and promotion work? Sales record? Service?

How do your sales organization and method compare with others? Age of men? Technical education of men? Sales training of men? Length of service? Experience in the field? Salaries? Volume of sales per man? New ideas in sales methods? How much better are they?

What salesman's compensation methods do you use? Are your men satisfied? How have your compensations worked? What is your sales turnover? Do you control your sales effort from headquarters?

Do you make an analysis of your volume by lines of product, demand, customers and salesmen? What does it indicate about increasing and decreasing lines or demand?

Do you analyze sales performance month to month and season by season for each line of product and demand, customers and salesmen and territories?

Do you periodically estimate what each line of demand will require? Each customer?

Do you budget sales expenses against expectation? How does your budget work out?

Have you a list of customers, present and prospective, arranged territorially, by classifications of demand and credit desirability?

Do you require daily reports on all important sales facts, and for all sales calls?

Do you require lost order reports? What do you do with them? Do they go to competent people for analyses? Do these people then discuss them with your salesmen for training purposes?

Have you analyzed the lost orders for last year? What did the analysis show as the reasons? Ever check up to find the real reasons?

How do you advertise? Why?

Do you use direct mail advertising? Why? Do you get traceable results? What?

What do you advertise?

Does it take a large force to handle such things? I know where one sales manager and a girl handle it. Suppose you had a comparison made? Suppose the whole industry had a monthly audit? Wouldn't it help? Of course, it would.

What Should It Cost?

The man who does not know his cost is in no position to control his profits in good times or bad. You can't fix prices except in one way —fix them on your costs. No Government has yet demanded that you must lose money. Stabilizing costs means stabilizing prices.

It might be a good idea if the law required that no manufacturer should take an order at a price under cost. Such a law would, at least, lead to some interesting results. It would make us get more accurate costs, for one thing; and that would be a great eye-opener to some operators.

I see you have made one step toward standard accounting practice. You made a beginning in the Standard Depreciation Scale. That is excellent—assuming it is scientific.

There has been a big development among associations in the adoption of standard cost practice. In every case it has helped the price situation, and in many cases materially aided the tax situation, and the profit possibilities.

In one industrial group the standard cost work has gone so far that the group can draw up a profit and loss statement showing the condition of the industry as a whole. Taking that statement as an obtainable standard, it then shows those that are better, as good and worse.

The Association then shows the badly off what policies and methods are responsible for their bad showing. The standard cost system has had a very valuable effect on the whole industry. Such standardization has a very valuable use in rate hearings, such as you have to prepare for and handle periodically.

Totally apart from the value to the industry at large, the standard cost system shows the individual operator what he can do, and he knows what the other fellow can do (although he does not know under this Association system the costs of any other member), because he knows the average costs of the profit-makers and the average costs of the failures.

It has been my observation that operators will not take business, in any large proportion of cases, at less than cost, *when they know it.* It is the fellow who works on guess-costs, or near-costs, who fools himself by thinking—"If Jones can do it, I can."

I recommend further investigation of the value of standard cost systems to you operators. It will give you better control of production operations, financing and sales, therefore, control of profits.

It is well to remember one thing, however, the high-cost producer is always in danger. No Association can help him to maintain the high prices that must go with high costs. The Association can show him how to find his costs, and show him how to cut them. If he won't or can't be shown, then at the first squeeze in the market, lessening of demand, prices seek a lower level. He disappears at once, or later, inevitably. It is the price of Progress.

It is well to remember that age and size of a company play relatively little part in the matter of fixing the importance of a concern in an industry. If age has been permitted to ossify the thinking powers, slow up the speed, lessen the progress, then age is a handicap. Size is only important to the buyer if it insures service.

The really important thing is—

Can the company give the buyer what he wants, when he wants it, at a fair price?

Where do you stand on your costs? How do you know? Can you afford, in the market that is developing, to be anything less than absolutely certain?

Horse-trading and Pricing

Scientific buying and selling, in this machine age, is becoming the order of the day. Recently, Albert L. Salt, President of the Graybar Electric Company, said to an interviewer:

"The trader is being eliminated. I can remember when the best horse trader in the village was looked upon as a natural born business man."

There is little place for the David Harums in modern business. They have gone out with single-entry bookkeeping, the horse car, the pick-and-shovel operator, the horse-drawn vehicle.

The trader in business, as Mr. Salt says, aimed "to buy things for less than they were worth and to sell them for more than they were worth." You all know him.

Jones says, "Now, Bill, you and I have been friends for ten years. I want to give you this order, but you're too high, way out of sight, in fact. Sharpen your pencil and see if you can't come within reason and I'll give you the order."

Bill gives him a long look, pulls out a pencil, asks who is on the job, recognizes a couple of price-cutters, sighs and cuts.

He gets the order on a basis of trading dollars with Jones, and Jones smiles contentedly as he contemplates a nice, fat, extra profit that he had bluffed out of his dear friend Bill.

Bill goes back to the office and tries to figure out how he can "beat the game" by giving his dear friend Jones less than he is paying for, all being fair for the seller when the buyer is a liar.

The trader was, and is, a menace to the buyer always, and he cannot build a real business on that principle in these days. We are just beginning to realize that he is a menace to the whole business, to every one of his competitors, individually and collectively, not only because he injures immediate profits but because he lessens the confidence of the public in the industry.

This applies with peculiar force to your industry because its product is being standardized, and so much of your future prosperity is bound up in how you play the game with the public, as well as among yourselves.

The buyer is waking up.

The National Association of Purchasing Agents has condemned the practice of playing off one bidder against another to get a price advantage. The Associated General Contractors of America have disapproved the practice of changing the price once the bid is in the buyer's hands.

Horse-trading tactics don't pay buyer or seller. Make a price based on your costs, plus a fair profit, and stick to it. If all of you will do that, and if you will develop the market that belongs to you, you can put Prosper back into Prosperity. If you will know your costs, produce what you can sell, and do it in the light of the best experience, and with reasonable skill, you can make prosperity pay you a profit.

FINALLY

Some will see nothing in all this idea of following the facts, despite the evidence that has accumulated that it is the only way. Such men will pass, and the buyers that once knew them will know them no more. Others will wait and see. Some of these will overwait and pay the penalty in reorganization and refinancing. Some will never see. "They have eyes and see not." They are always with us. They, too, will weep and wail. A few see, and will hasten to act.

V

EXPLANATIONS AND INSTRUCTIONS

HUMAN ENGINEERING[1]

CHARLES M. SCHWAB

Mr. Schwab, Chairman of the Board of the Bethlehem Steel Company, delivered this address as President of the American Society of Mechanical Engineers for 1926–1927, as part of the President's Night program of the annual meeting of the society, New York, Dec. 6, 1927.

Of all the arts and crafts and professions to which men devote their energy and their talents, none more profoundly affects the destiny of the human race than engineering. From the Pyramids of Egypt to the Panama Canal and present-day achievements in conquering time and space, the profession of the engineer has played a dominant part in the lives of men and nations. It has chosen the ablest, the most daring, and the most energetic of men, has inspired them with the desire for achievement, and has then exacted their utmost of devotion and service. It is but natural that the result has been measured in better and higher standards for society. Wherever engineering has excelled, there we find the highest order of life.

In their progress during the last half century, engineering and industry have marched side by side. Their development is a remarkable story of scientific achievement. The mobilization of capital and engineering talent has made possible the large-scale industry that is the leading characteristic of the wonderful era of progress in which we live.

Human Problems in an Industrial Civilization

This new industrial order created its own problems—new problems of social and economic aspect requiring the highest type of statesmanlike management for their solution. Industry has brought together and welded into single organizations hundreds, sometimes thousands, of human beings with widely different habits of life and thought. For the success and happiness of these human beings and of society as a whole, it is vitally important that mutual relationships should be adjusted on the basis of fair dealing and cooperation. Here is a problem embodying the recognition of all the differing physical and mental characteristics of individual human beings, and one peculiarly within the province of the engineer, which includes all industrial benefits to mankind.

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[1] By permission of the author. Reprinted from Volume I of the *Record and Index* of the American Society of Mechanical Engineers, New York, 1927.

Need for the solution of this problem brought forth a new concept of the management of business. At the same time it created a new science, a new field of engineering which for want of a better name we call human engineering—the practical science of humanizing industry and of making the men in it substantial, self-respecting workmen and citizens and factors cooperating in the success of the business. This new science recognizes that industry is dependent upon mass production, machine processes, and technical skill, but that the human element after all determines the progress of a business and its service to the country at large.

Conflicts in Industry Ruinous to All Parties

Forward-looking management, as well as far-sighted representatives of employees, are coming to realize that if full benefits are to be had from the creations of engineers, industry must be viewed as a cooperative undertaking, in the advancement of which every supervisor and every employee is an important factor. They recognize that conflict between capital and labor is destructive of the interests of each; that it is unnecessary and mutually expensive.

Herein lies a field where expert service in enlisting the interest and confidence and good-will of the workers becomes just as important as the study that has been given to the characteristics and utilization of materials. Out of its solution comes a new code of economics, a code that aims not only to provide food and clothing and shelter, but also to elevate society at large and to place a true dignity upon labor, a dignity that yields a fuller and happier measure of life. It is highly fitting that we in America have led the way to better industrial relations, for indeed there is being brought forward a truer realization of the principles set forth in that great document signed at the inception of our nation enunciating the doctrine that among the unalienable rights of men are life, liberty, and the pursuit of happiness.

But this happiness does not lie along the road of abolishing work, for work is the cornerstone of real happiness. It lies in the doing of the day's work with a zest and good-will, under the spur of encouragement and rewarded with the satisfaction of achievement. This requires the cooperation of labor itself, not merely of the hand but of the heart as well. To obtain that cooperation requires leadership in industry that regards itself not as partisan but as a trustee striving to guide the efforts of both capital and labor into profitable channels.

RESPONSIBILITY OF ENGINEERS IN HUMAN RELATIONS

One cannot reflect on the subject of human engineering without realizing the tremendous responsibility that rests upon management in guiding the destiny of mankind. Indeed we are impressed that the solution of this problem holds out a challenge to industrial statesmanship that is of paramount importance to the prosperity of our nation. It is a tribute to American industrial management that these principles have largely been recognized, and that in this country today the parties to industry generally recognize their responsibilities and opportunities.

In this human achievement, which is outstanding in the present era, the engineer has played a dominant part, for he has often played the rôle of manager too. It is highly proper that his efforts should be recognized. I can think of no more fitting illustration of the recognition of his contribution than the recent honor accorded a brother engineer, Mr. Eugene G. Grace, on the occasion of the award to him by one of our great universities of the degree of Doctor of Engineering. I cite this incident because of the peculiar personal satisfaction which it gave me, and because in presenting him for the degree the eminent educator paid a tribute to our whole engineering profession when he said:

> Mr. Grace was one of the first American business leaders to rise to the opportunity of bringing about better relations between employer and employee. By his vision and example in dealing with those hitherto unsolved economic and social problems he brought forth a new management in industry.
>
> Mr. Grace is not merely the executive head of the greatest independent steel corporation in the country, but has had from the beginning a profound acquaintance with the intricate technology of steel-making. As a student of economics he was able to appreciate that large production could be followed by high wages, and had the engineering skill to see that these benefits to his fellow men could be brought about by making the greatest use of electrical power in manufacturing processes.
>
> It is not, however, the stupendous growth in the physical plant nor the mere mastering of machine production on which rests Mr. Grace's reputation as a captain of industry. Though less spectacular, his pioneer work in Human Engineering—the practical science of humanizing industry—is perhaps his most outstanding achievement.

EFFORTS OF ENGINEERS AND MANAGERS TO SOLVE CAPITAL-LABOR PROBLEM

From the problem growing out of employer-employee relationships in modern large-scale industry, let us turn now to the efforts at solution that have been made by engineers and managers in responsible control of business enterprises. In dealing concretely with this part of the subject, I hope I may be pardoned for drawing illustrations largely from the experiences of the Bethlehem Steel Corporation, which is only one of many industrial concerns that in recent years have taken advanced positions in this vitally important subject.

Our job primarily is to make steel, but it is being made under a system which must be justified. If in addition to manufacturing products this system does not enable men to live on an increasingly higher plane, if it does not allow them to fulfil their desires and satisfy their reasonable wants, then it is natural that the system itself should fail.

REASONABLE WANTS OF INDUSTRIAL WORKERS

What are these reasonable wants of employees, which they have a right to see satisfied as far as conditions of industry permit? I believe they include the payment of fair wages for efficient services; steady, uninterrupted employment; safeguarding of their lives and health, good physical working conditions; a voice in the regulation of conditions under which they work; provision for them to lay up savings and to become partners in the business through stock ownership; and finally, some guarantee of financial independence in old age.

MODERN MANAGEMENT AND THE FUNDAMENTAL QUESTION OF WAGES

The desire of labor in connection with wages can, I believe, best be fulfilled by rewarding men in accordance with their contributions toward the success of the business. It is fundamental with human beings that they want individual recognition of and reward for their talents and achievements. This is the crux of the wage problem. The nearer we can come to fulfilling this want on a sound, justifiable basis that recognizes individual merit, the sooner shall we witness the solving of a long-standing and contentious question.

Relations in industry have sometimes become strained over the fundamental question of wages. The area of conflict was widened because of adherence to a policy which sought to group together at a uniform wage, regardless of individual performance, large bodies of workers even though geographically widely separated. Such a policy often tended to discourage effort and to reduce individual output to a standard set by the least efficient worker.

We have traveled far in our thinking on this fundamental question of reward for service. We have come to have a new viewpoint toward the payment of wages. Our better relationships have brought a clearer understanding of the reciprocal value to national well-being of a class of well-paid workers whose buying power is sufficient to take the output of our mass production. We are ambitious to see our workers receive an adequate wage—a wage that is sufficient to afford a worker and his family a decent standard of living with a margin for laying something aside—but we cannot entertain any uneconomic theories as to doles or subsidies. We cannot lose sight of the fundamental law that requires full value in services for wages paid.

How to measure and relate output and wages on some fair basis has become an important function of management. We now realize the essential benefits derived from relating compensation to the contribution made by the individual, with the result that under the stimulus of measured return for service rendered there is an increasing tendency for men to take a keener interest in the business, much as if they owned it. This applies to workers as well as managers.

Economic Status of American Wage Earners

The economic position of our workers has become the wonder of the world. The earnings of American wage earners in terms of what they can buy are probably greater now than at any previous period in American history; certainly they are far greater than those of the workingmen in any other country of the world. In the face of these higher earnings our foreign brothers marvel at the coincidence of lower costs. The answer is that American workmen have come to realize that wages and profits are paid out of the same pocketbook and that the return to each must be proportionate to effort expended. American workmen are responding to the bid that is being made for their cooperation and realize the important factor they are in the success of the business, and they appreciate that their employers under an enlightened human-relations policy are striving to provide as high wages as can be paid consistent with sound management and the safeguarding of the investment and in line with general economic conditions.

STEADY EMPLOYMENT

High wages do no good to the man who has no chance to earn them. Hourly and daily rates mean little to the employee who can work only a few days a month or a few months out of the year. Steady employment, therefore, ranks high among the needs of the workman. During the last few years industrial managers have been giving much thought to this question—to the elimination of the evil of unemployment. It has come to be realized that peaks and valleys of industrial activity, during which periods of feverish effort to get out products alternate with periods of idleness and stagnation, not only are undesirable from the standpoint of the workingman but are wasteful and expensive to industry and to society as a whole. Toward the leveling of these peaks and valleys much has been done by the intelligent efforts of management; perhaps even more has been accomplished as a result of the sustained purchasing power built upon high wages and of the changed buying methods of the public. This last-named element, in turn, has resulted largely from the increased capacity and reliability of both production and transportation. Thus we see the interdependence of all the elements in that intricate machine we call industry.

The records of our own company illustrate the substantial progress which has been made in reducing these peaks and valleys. Whereas the high and low points of employment a few years ago fluctuated fifty per cent from the average, during the following years these fluctuations were steadily reduced until in 1926 the high and low points of employment as measured by the pay-roll varied hardly eight per cent from the average for the year. This regularity of work is not only of vital importance to employees but it has a far-reaching influence on good business.

FINANCIAL INTEREST IN THE BUSINESS

But even with good wages and steady employment, the workingman is likely to lack one factor essential to his fullest efficiency and greatest interest in the company by which he is employed. This factor is ownership. A sense of proprietorship affords a powerful incentive to arouse interest in the performance of work. This principle has been the motivating influence of those who have been willing to take the risk incident to the building of all business. Its application to the wage earner in industry is relatively new, yet nowhere is the whole-hearted interest of human beings so necessary and vital to successful accomplishment. Recent years have seen a considerable growth in stock ownership by industrial employees. I would not minimize the possibilities of danger involved in this practice, nor would I urge every company, regardless of the character of its securities, to enlist its wage earners as partners. Under favorable circumstances, however, and with the proper safeguards against speculation and possible loss, stock ownership by employees may be one of the most successful incentives to thrift and to vital interest in the enterprise. We are greatly encouraged with the results of our own experience along this line. In our efforts to increase the interest of our employees in the business and at the same time to afford them a means of saving and investment, Bethlehem has for several years encouraged the employees to acquire ownership through the Employees' Saving and Stock Ownership Plan.

That they have enthusiastically responded to this opportunity is shown by the fact that in the short period of four years over fifty per cent of our employees have either paid or are paying for substantially seventeen per cent of the corporation's stock of this class outstanding, representing an investment at par value of $17,000,000.

It is gratifying and highly significant as reflecting the present economic position of the workers that their wages have permitted them to make such substantial savings, but it is equally significant that they now have become capitalists with a financial interest in the business.

Under a plan of this kind the mutuality of interest which should exist in industry finds its greatest expression. On the one hand the company prospers because the employees strive for the elimination of waste and the better doing of their jobs, and on the other hand the employees themselves profit as the company prospers.

Cooperation Through Representation Plan

Successful human relations in industry recognize that the interests of employees and employers are mutual. It is recognized that as enemies they cannot long endure; they must be friends. The very nature of their aim for profit creates an interest in one another's well-being.

It is true that just as in any human relationships there are day-by-day problems arising in industrial relations which, if not settled with full justice to each, will threaten this bond of friendship. But the need for a medium for preventing or adjusting breaches in relations is not the whole objective of employees and employers. Essentially these two parties have been seeking a medium that would provide a common meeting ground. They have really been seeking for a way of living together which would permit an expression of their personality and yet cement and increase this friendship. The employee-representation movement is such a constructive medium, permitting not only settlement of questions on which there is a conflict of interest, but, of even more importance, offering an unobstructed channel through which their unity of interest may be promoted.

The cornerstone of Bethlehem's relations with its employees, in so far as their direct contact with the company in their daily job is concerned, is the employees' representation plan which was inaugurated nine years ago. To this plan and to good faith in living up to its provisions is to be attributed much of the gain in cooperation and goodwill which we enjoy in our internal relationships.

Our company was one of the first to inaugurate employee representation in its plants, and in the early stages of the plan there was a natural tendency to lay the greatest emphasis upon its possibilities as a mechanism for grievance adjustment. Experience has shown, however, that this phase of its operation is giving way more and more to constructive efforts to improve conditions in the business and to constructive cooperation along the lines of increased efficiency, elimination of waste, and improved methods and quality and quantity of products. Along with this development has come a growth in morale and in sympathy and understanding between the employees and the officials. On the one hand the employees have gained a more intimate knowledge of their company and its objectives, and, on the other hand the supervisors have come to realize more definitely than before their function as leaders rather than as drivers of men.

How the Representation Plan Works

The plan, in its essentials, provides for the election by ballot of representatives by and from among the employees. It has for its purpose four fundamentals: to give the employees a voice in the determination of the conditions under which they work, to promote cooperation between employees and management in matters of efficiency and economy, to furnish machinery for the prevention and adjustment of differences, and, so far as possible, to provide and foster continuous employment.

The plan is primarily a system which provides for election by shops or departments of representatives to meet and deal with the management for the discussion, regulation, and adjustment of matters having to do with all the conditions which may arise out of employment. Nominations and elections are held annually in each plant by secret ballot, and are conducted by the employees themselves with only such assistance from the management as may be required.

The annual elections give an indication of the interest of the employees in this plan. The average percentage of eligible employees voting last year at the different plants was 93 per cent. Between 1918 and 1926 this percentage rose from 60 per cent to the present figure.

All action taken under the plan is joint action, and regular meetings are held with management representatives to discuss and pass upon questions that may arise.

Each employee representative is guaranteed full independence of action, and Bethlehem accepts the policy of arbitration. In other words, if no satisfactory adjustment of the case is reached, it may be left to arbitration. In no case, however, during the past nine years has it been necessary for any case to go to arbitration.

Annual Conferences with Employees

One of the striking developments of this whole system, and one which represents in our judgment a far-reaching step, is a series of annual conferences at the various plants of the corporation. One of the objects of these conferences has been to make an annual report to employees just as the corporation makes an annual report to its stockholders. At these meetings the employee representatives and management representatives sit down with Mr. Grace, the president of the company, and other executive officers for the consideration and discussion not only of employee matters, but of general business conditions and questions of company policy.

At this year's conferences, which were concluded a few months ago, I had the opportunity to join in these proceedings, and nothing could indicate to me more clearly than these meetings the fact that over the last few years real progress had been made in better industrial relations and that such cooperative activities as I have mentioned lead to constructive endeavor on the part of both management and employees and to material benefits to all concerned. At these conferences all subjects relating to employees and their welfare are discussed, the company executives report on the state of business and the outlook for the year as it may affect wages, working conditions, and the volume of product, and the employees present their point of view on their activities, on the steel business, and on plant operations. The officer in charge of industrial relations makes a report on the operation of all employee activities, and the president himself discusses in a most intimate manner all phases of the corporation's business. Suggestions are freely made and openly debated. The result is that both management and men get an insight into what each other is thinking and an understanding of the other fellow's point of view, which cannot but be effective toward advancing the interests of all.

Safeguarding Life and Health

With high wages, steady employment, a financial interest in the business, and a means of contact and cooperation with the management through representatives of his own choosing, the wage earner has perhaps secured the fulfilment of the most important and vital of his desires. There are other factors in industrial relations, however, which should by no means be overlooked. One of these concerns the safety of work and the provision made for the employee in the event of sickness or accident. For indeed both sickness and accident affect both wages and stability of employment.

Advances made in industrial-safety work since the beginning of the century have been noteworthy and reflect credit alike upon management and men, for essentially it has been a cooperative movement. Much of this advancement has been due directly to the efforts of the larger industrial corporations. One of the things for which the world will long remember my friend, the late Judge Gary, was his continued and successful effort to improve safety conditions in the great industrial organization of which he was for so many years the head.

Bethlehem carries on a thoroughly organized and persistent campaign of accident prevention, first-aid instruction, and safety work. Permanent safety committees consisting of employees of various operating departments are charged with the duty of cooperating with their immediate supervisors in maintaining maximum safety of working conditions, and they receive additional compensation for this service. One of the features of the first-aid work carried on under the guidance of competent doctors and nurses is a meet at which first-aid teams from various plants compete for substantial cash prizes. Since the beginning of this work more than 8000 of our employees have received first-aid instruction.

To assist the employee in case of sickness or death, the corporation has a relief plan which covers all employees. Its purpose is twofold: first, to provide disability benefits when their income is cut off because of sickness or accident not provided for by law, and second, to provide death benefits for the widows and dependents of employees. Funds for the payment of benefits are derived from contributions by the employees and from contributions by the corporation, the corporation assuming all administrative expenses.

The administration of this plan is typical of Bethlehem's policy of joint management of affairs directly affecting the employees. Questions of general policy, amendments, changes, and problems arising under the plan are determined by a board of trustees, half of whom are chosen by the employees and half by the management. The amount paid out yearly in benefits under this plan is nearly $1,000,000, and substantially all eligible employees throughout the corporation have become participants in it.

The company also maintains a well-organized medical service in each of its plants for the convenience of the employees, in the belief that sympathetic understanding on the part of the plant doctor is of equal importance to technical skill and that the medical department contributes a great deal toward providing steady work. As a result of all this effort we have reduced preventable accidents nearly 60 per cent in the last 11 years. Here is another example of a worthy contribution through cooperation toward a better day in industry with the result that there is a return to the employee in a physical and monetary saving, a return to the employer in lower costs, and a return to the community through a lessening of care for the maimed and disabled.

Provision for Support in Old Age

One of the most difficult problems not only in industry but in society as a whole is the maintenance of those who on account of old age are no longer able to support themselves. Many industrial companies have recognized an obligation in this matter and are seeking to provide for their aged employees through various types of pensions. To meet the economic needs of the aged worker, however, is not the only aim of a pension plan; it also provides a highly fitting basis for rewarding those faithful workers who have given their best years in the service of the company.

Bethlehem has a pension plan under which an employee who has reached the age of 65 and has rendered 25 years of service may retire on a pension. There are today under this plan more than 1000 former Bethlehem employees who, while not rendering active service to the company, are nevertheless as whole-heartedly interested as ever in its success. Ours is one of the newer pension plans, having been established only about five years ago, but already there is being paid out to pensioners nearly one-half million dollars a year.

Aid toward Home Ownership

The present tendency of workers to invest in the purchase of what are regarded by some as luxuries is sometimes viewed with concern. On the whole I believe this tendency is but a step in the march of progress to a higher standard of life—a fulfilment of the new code of economics under which the luxuries of yesterday are becoming the necessities of today. Fundamentally the whole trend is based upon the better economic position of the worker helping to place their conveniences within the reach of all. Workers will acquire them in accordance with their economic ability and to suit their individual tastes. They will make their own decisions as to their individual needs, and will not require any special assistance in doing so.

But in the desire for home ownership, which ranks high among the ambitions of the average workman, there is generally need for financial assistance. We believe that any assistance we can render our employees to help them realize this desirable ambition not only makes for better standards for them, but makes for a better community as well.

With this in mind Bethlehem for several years has had a plan under which the company helps its employees purchase homes on easy partial payments. The company has thus assisted employees to build or buy homes valued at several millions of dollars. Its aid in this housing program takes the form mainly of guaranteeing or purchasing the second mortgage on the property. The employee has the advantage of advice from the company's architectural, engineering, financial, and legal departments. He receives full title to the property, is under no obligation to the company so long as monthly payments on the mortgage are kept up, and his dependents are protected in the event of his death by a life-insurance policy at low rates during the terms of his indebtedness.

Measuring Benefits of Human Engineering

If I have seemed to give undue prominence to the human-engineering program of the Bethlehem Steel Corporation, it has been done merely in order to illustrate the general tendency of large-scale industry by concrete facts drawn from the organization with which naturally I am most familiar. Industry as a whole, and particularly that part of it to which the term "big business" has been applied, has made important progress along this line of bringing justice and cooperation between employers and employees.

Naturally, such an ambitious program has not been put through without expense, but we do not believe that this money is being used unwisely. We look upon it as being really an investment in national well-being.

I realize in what I have just said I am making a broad claim. Engineers are practical men and some of you may be inclined to ask upon what I base my statement. The question is a fair one, and it brings us squarely up to an inquiry as to the results of modern methods of labor management—the results of this human engineering to which we have been giving consideration.

Should we be content to accept the often expressed opinion that the benefits are intangible and simply rely upon our faith to justify our efforts? Will the average citizen merely applaud this new order as a desirable and worthy ambition for better conditions on the part of the definitely affiliated factors in industry, or will he, whatever may be his calling, see beyond and realize that he is personally and profoundly affected?

Surely the engineer with his trained powers of analysis will be among the first to see the effect that these better relationships have had in advancing his own science, for he no longer finds an unenlightened resistance to the fruits of his genius. Indeed he has come to be regarded as an indispensable ally of employees as well as employers under this new order. And the benefits to employees in an improved economic status and to employers in increased good-will and productivity and steady operations are so readily recognized as to assure no backward step by either party.

Effects upon the Stability of Business

But I must go beyond merely the benefits to employers and employees, important as these benefits are, if I am to justify my statement that the money spent upon human engineering is an investment in national well-being. Let us turn then briefly to some of the advantages that have accrued to the nation and to society at large. To start with one of the most obvious, I believe that the present stability of business s due largely to the better relations that have been brought about between employers and employees. It was not so many years ago that buyers of basic products were under a constant fear that their supplies of essential materials would be interrupted by strikes, lockouts, or other overt expressions of industrial ill-will. They could not be sure of uninterrupted production. Therefore it was quite natural that they bought beyond their needs and laid up surplus supplies which, in periods of business recession, were dumped on the markets and added to the demoralization and stagnation which formerly characterized several downturns in the business cycle.

Today this situation has changed. It is only in a few industries, having special problems of their own, that there is at any time any serious danger of suspension. Buyers realize that they are no longer the victims of conflict and misunderstanding between management and labor in the producing industries. The confidence which they have therefore come to have in the ability of industry to supply continuously and uninterruptedly their requirements has revolutionized purchasing methods. Within the last few years we have seen the purchasing public abandon its long-established practice of rushing in to place orders upon a basis that required full-capacity operation for a time and then withholding its patronage during a period of lessened production, unemployment, and economic distress.

This new method of buying has gone far to level the peaks and valleys which formerly characterized the business cycle. It would be too optimistic to hazard the prophecy that these peaks and valleys have been entirely eliminated. Even the most conservative of us, however, has evidence that their extent and severity have been greatly reduced. For this important advantage to business and to the public I give much credit to the better relationships that have been built up between management and employees.

Sustained Employment and Purchasing Power

With this greater stability of business has come more regularity of employment. A few minutes ago I spoke of steady employment as one of the reasonable desires of the laboring man. Now, however, we should consider it from the standpoint of business as a whole and of the nation. Until recent years a large amount of unemployment was considered to be natural and inevitable, under certain circumstances. It might be caused by the stagnation resulting from the downturn of the business curve, or it might be voluntary idleness due to strikes and misunderstanding within industry.

Gradually it was realized that under the interdependent linking of one industry with another, enforced unemployment in one line of business might be the result of voluntary idleness in a related enterprise.

However diverse may have been the causes of unemployment, there was no doubt as to its harmful results not only upon the workman and his family but upon business and society. Injury to business and society became constantly greater in the measure that industry came to depend upon the purchasing power of the wage earner for a large portion of its market. It is surely apparent to us today that no section of our population can remain idle over a protracted period—whether involuntarily as the result of business decline or other circumstance, or voluntarily as a result of industrial misunderstanding—without this situation affecting the whole economic structure of our nation, for continuous employment and adequate buying power of the workers and a fair and steady return to investors are the foundation of our national well-being.

Human engineering, therefore, by improving the relationships between employers and employees, has lessened industrial conflict and misunderstanding, benefited workers and owners of industry, stabilized business through improving service to the purchasing public, and fostered the continuous employment at high wages upon which is built our present economic prosperity.

Opportunities for Further Service

Successful industrial management in the future is going to depend more and more upon management of men rather than upon the organization of machines and other problems which are ordinarily considered in the sphere of practical engineering. For the most part and generally speaking, the engineering profession may be said to have solved or laid the groundwork of solution for the essential problems of the engineer in his technical field. Experience shows, however, that industry's most important task in this day of large-scale production is management of men on a human basis. Not only is this essential as affecting production, but it is becoming increasingly more important toward the maintenance and development of industry's own markets, for under present-day economic conditions in America, workers are more than producers, they constitute the very backbone of large-scale consumption.

Let us hope that the new viewpoints from which industry is being regarded will hasten the day when we shall cease to talk about a separation between labor and capital and begin to think of management in an all-inclusive sense—a new concept of management to include employees and employers striving hand in hand to bring success to the undertakings in which they are engaged.

The opportunities for further service in industrial statesmanship and engineering are indeed immeasurable. We have not attained perfection but we have made real progress and reaped substantial rewards. This knowledge should hearten us to strengthen, perpetuate, and extend the principles of this new order of human relations, so gloriously started, that we may have a nation of contented, self-respecting workers and citizens, and a sound, prosperous, progressive industry in the interests of society at large.

In my belief that we shall continue to meet this challenge lies my abiding faith in the future of American industry.

WHAT IS BEING DONE IN THE FIELD OF MEDICINE TO LENGTHEN THE SPAN OF LIFE[1]

DR. CHARLES H. MAYO

Dr. Mayo, of the Mayo Clinic, Rochester, Minn., gave this address before the Association of Life Insurance Presidents, New York, Dec. 12, 1924. To the extent that Dr. Mayo urges that life insurance companies give their support to a program of preventive medicine, this talk might be classified as a promotional address, but it was intended, apparently, as an explanation.

What a wonderful period the past few decades were for you to live in! Within the last 100 years, 95 per cent of all the great developments of the world have occurred. Man's power has been multiplied one thousand fold by his ability to create and control the things about him.

When one goes back into ancient history, we find that in the days when King Tut was a young man, boys were married at 13 or 14 and the girls at 12, in order to have any life at all with their wives. But King Tut died as a young man, and we find he had marvelous things stored away in that old tomb, and we are copying them today in our furniture factories.

In 24 years we have accomplished more in medicine than we had in 24 centuries before, because it was just 24 centuries ago that Hippocrates was alive. He lived up to 400 B. C., and he laid down a marvelous record of the observations of man in the field of medicine. That is what our old doctors had to do. It was observation and very little laboratory work, but they did marvelously well from a study of the man himself.

In the hundreds of years that followed the time of Hippocrates, how little change there was! In the fourteenth century, 50,000,000 people died of the plague. There was no way of escaping it except to run away and leave their homes. In the seventeenth century, 50,000,000 people, maybe 100,000,000, died of nothing but smallpox. New York City, from 1787 to 1800, was devastated by smallpox.

Those are controllable things today.

When we think that man, in the sixteenth century, had but 20 years of average length of life, and that has come up and come up until now we have the age of 58 as the average age of man, we realize the tremendous strides that have been made. When you go to funerals you hear the ministers say that man's life should be three score and ten, and you wonder whether you will be able to do that. We hope to be able to do that from a medical standpoint within the next 25 or 40 years.

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It is coming. We know it is coming from the record of the past, because we are controlling and have controlled mass diseases, plague, such as cholera, typhoid fever, etc. Only within the past few years comparatively, have we known anything about typhoid fever. We now find it is the old body louse, the cootie, that carries that disease.

When we come to study the carriers of disease as an economic problem we find that Texas cattle fever is distributed among the cattle by the cattle tick, and so in the great South and West, they drive every so often their animals through the vats to destroy the cattle tick.

Dr. Theobold Smith, of the Department of Agriculture, and Dr. Wilson, of our clinic, worked out the next problem with their co-workers, which was that the spotted fever, the mountain fever, was carried by the cattle tick again. But off the cattle tick on to man!

Then came the work of Gorgas. Reed and others, working under Gorgas, worked out the discovery of yellow fever, and poor Reed lost his life in the investigation.

Next came malaria, and we successfully combated that.

With the elimination of the mass diseases, we come down to the modern type that man is dying from individually. Are we doing anything to help him? The fact is mentioned that over 7,000,000 of our young people had to be examined to get a little over 4,000,000 that were healthy enough to participate in war's duties. These young people were not responsible. It was the lack of knowledge of their parents.

Every one of us that has succeeded in this country has succeeded largely because of the opportunity for education. But there is no educational problem in this country that can support itself on its income, so we have to give and give and give to education. The responsibility is something that can not be evaded by any man who has education.

So I say it is not the fault of all the 34 per cent of boys examined in this country in the third decade of life who were found suffering from disease and its defects. That trouble is one, then, that comes from where? Not the cities. The cities get better care today by far than the farms, the rural communities.

I am glad to say that in Rochester, Minn., (I am health officer) we have a death rate of just about 2/100 of a per cent, the lowest death among babies of any community in this country. Yet we are not getting many more men to old age than we used to. That is a problem that depends largely on inheritance, but we are getting the average age up higher because we are saving more babies. Yet the women of this country are dying of child-bed fever in far greater numbers than they are in 10 of the countries of Europe, which is a discredit to us.

We have, just from studying the problem of tuberculosis in the last 35 years, reduced the death rate from 200 out of each 100,000 in the United States to about 97, or a little less, today.

As we advanced the age of man, the problem of cancer came up. We say it has advanced 2½ per cent a year for some time. Why? You can't take the two things and not see the harmony between them. If we are going to make older men, then they are going to live to a cancer age—they are living on and increasing the percentage of cancer cases. It isn't that cancer has increased so much, but that we are advancing the age of man into the cancer period of life, the period of degeneration of cells.

As we come up then and add to the age of man, the machinery goes to pieces, it needs a little more oil. It is very similar to a good car. If you have a $4000 car, you send it down to be looked over, and that is a fine thing. But it seems your own life isn't worth that much attention. You won't pay even a small amount to go down and be looked over, after you are 40 years of age, to see what you are going to die of, because those things are all laid down; they are all laid down in history. You may not turn the leaves and look at the pages, but it is written down what pretty nearly all of you are going to die of.

One hundred and fifty out of each 100,000 people are going to die of heart disease, and they are dying in that ratio. One hundred and forty approximately out of every 100,000 are dying of lung diseases, the pneumonias.

There are four types of pneumonia. Of course, when the break comes with these men, it is some trivial thing; they get another type of pneumonia today, not the old-fashioned lobar, solid pneumonia that you knew which was indicated by the spitting of blood and the solid ungs going out; they are dying now of the other three types of pneumonia, and much more than we used to see 30 years ago. They are dying of streptococcus pneumonia, caries in the mouth, which is ll ready to spring on them the minute they are down from almost any rivial cause. Those are the problems we have facing us.

Nephritis—about 89 people out of each 100,000 are dying as a result or cause of that. About 80 people out of each 100,000 of us are dying of kidney trouble, and 90 of apoplexy, which is in the heart disease class.

But between what years are all of your friends slipping away? Between the ages of 50 and 60. That is the period when death comes from heart disease. And why?

We have a wonderful autopsy department at home. I don't want to scare any of you out, but I would say that a great many of you would be interested to know the result of the examination after death, to see what you or your family really died of, to see what the complications were, because so few people today die from the thing they have been operated on for. They are dying because of the wearing out of the machinery. The kidney is bad, the heart is bad, the lungs maybe are bad. They have infections; they have many things; the nervous system is gone; they have circulatory troubles, hardening, etc.

Those are the real problems today because one out of every 12 men over 40 years of age dies of cancer, and one out of every 10 women dies of cancer, and those are things that have to be investigated.

So this old heart of yours as a wearing out machine is changing one's mind in making autopsies. As the heart is cut through, you see the little grey spots with streptococci that may have come from a root abscess. That abscess caused no pain to the man; the man had a dead tooth; somebody took out the top and crowned it and fixed him with something so that he had no pain whatever and he didn't know he had any real trouble there. He has trouble in his tonsils perhaps. Somebody looks at them and says, 'Why, you have a small tonsil." No large tonsil ever makes a secondary disease. It is always the small tonsil, with the buried pocket, that causes trouble. Our little attackers have got to be seen with a microscope; you don't need a telescope.

In the old days, 30 years ago, they talked about the Lunural theory, and the diathesis, and the things that attacked men. Then came the infectious theory. Now we are up to the chemical state, with the wonderful knowledge that we have today of chemistry—everything in the world that lives, plant life and animal life and human, which is included with the animals of course.

We use just 14 of the 92 elements that make up the entire earth; 14 of those elements in their combinations are all that are necessary to grow the plants and to grow every kind of cell that lives. From those elements, we get growth of man, because man lives on the animals and plants themselves which get their existence from those elements. Man depends for his development on exactly the same things that all animals and plants do, from the very earliest period when he starts with so minute an egg that it can rest on the point of a pin, and that egg develops into a human life, a human being. We must have then in our circulating blood everything that we need for growth.

So it comes down to a question of our inheritance, and what we are going to die of. Look back and take the records of your family, of your forefathers, and see what they died of. Did they have rheumatism? Did they have heart disease? What proportion of them had heart disease? That is your danger. How many of them got apoplexy? How many of them had defective nervous systems?

The condition now exists that each man is dying his individual death, and it is up to us to see if we can't reach him in some manner and persuade him that it is worth while, when he is 40 years of age, to go in and be looked over to see if he can't be helped and to keep his old machinery from going to pieces from neglect.

THE RISK-BEARING INSTITUTION AND ITS RELATION TO MODERN INDUSTRY[1]

FREDERICK H. ECKER

Mr. Ecker, President of the Metropolitan Life Insurance Company, delivered this address at the fourth public conference on education and industry under the auspices of the University of Chicago, and the Institute of American Meat Packers, with the cooperation of The Chicago Chamber of Commerce, The Commercial Club of Chicago, and The Industrial Club of Chicago, at Mandel Hall, the University of Chicago, Oct. 26, 1927.

The importance of the institution of insurance to our economic structure may be measured by the amount of insurance which is in force to protect our life and property values. For instance, insurance companies protect against the hazard of losses from fire over $125,000,000,000 of our national wealth, which is estimated at approximately $350,000,000,000. When one recalls that a very substantial part of our national wealth is of a character not subject to fire hazard, the relation of the amount so insured to the total value which is insurable becomes more significant. The American people thoroughly believe in insuring property values.

Property, except in its relation to human life, has no value. The most thoroughly equipped factory, in a desert where human life does not exist, would be worth nothing. If life is responsible for values, certainly, from a purely economic viewpoint, lives should be insured against death. With the passing of a life there is a definite economic loss to the community, to the home, and in the case of the wage earner, to business. How much this is appreciated is evident from the fact that our American people carry life insurance to the extent of over $80,000,000,000. Assuming the national annual income as $85,000,000,000, the amount of life insurance in force now approximates one year's income.

HISTORICAL ORIGIN

While insurance, as we know it to-day, is preeminently a modern institution, it had its origin centuries ago in the recognition of the importance of providing some method of spreading the losses of the few over the many engaged in a common enterprise. One of the most interesting efforts of this nature occurred in England among those engaged in early commercial shipping. History tells us how ship and cargo owners would regularly gather in Lloyd's Coffee Shop in London toward the end of the seventeenth century and enter into mutual agreements for the protection of their property interests against the perils of the sea. Then we find life insurance springing into existence largely from the necessity of protection against the loss of life of mariners, but not really getting started until a later period when life insurance companies were organized. The great fire of 1666 in London gave an impetus to and demonstrated the need for fire insurance. Marine, fire and life insurance originally had to justify their existence in the face of numerous difficulties, one of which was the strong belief that disasters and death were acts of God and that it was sacrilegious to attempt to insure against the decrees of Providence. A more practical difficulty was the lack of adequate experience or data upon which to base rates. Just as these forms of insurance originated in the necessity of safeguarding the future against the loss of property or life, so casualty insurance later came into existence to offer various forms of protection against other hazards. That the development of industry and insurance go hand in hand is illustrated by the fact that the insurance of travelers against injury on trains was the first really popular accident insurance.

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[1] By permission of the author.

What It Is

Defining insurance in terms of our industrial and commercial processes, we find it is not a productive process like manufacturing, nor is it a distributive process which contributes toward the marketing of manufactured products. Insurance is a service of indemnity which protects all factors woven into our economic fabric. It is designed to give the policyholder a sum equivalent to the value of his actual loss, or in the case of life, health or accident insurance, a definite amount agreed upon in advance to be paid upon the occurrence of the contingency insured against. Insurance safeguards the future against uncertainties. The cost of insurance is reflected in the price of every commodity.

Insurance and Credit

Property values have been, to a great extent, the result of the development of credit structure. It is inconceivable that business could be carried on without credit. This integral feature of business is a factor in each step of our economic growth. The manufacturer borrows to construct the factory which houses his operations, to meet his payroll, or to pay for raw materials. The wholesaler and retailer are dependent upon credit for capital with which to help finance their respective enterprises. Then, too, we find consumers using their credit to enable them to purchase on the instalment basis many of the necessities and luxuries of life.

How much of this credit would be extended if there was no institution of insurance? Certainly not as much as is granted today because insurance is a stabilizing factor essential to credit. Mortgagees will not advance funds upon inventories, factories or dwellings without the protection of fire insurance. It is not unusual for bankers to require life insurances policies as a condition precedent to making loans. The automobile finance company makes sure that its equity is protected against the possibility of loss due to theft or fire. Many other illustrations could readily be cited to show the importance of insurance to our credit structure.

Let us look at the relationship of insurance and credit from another aspect. A very substantial part of business throughout the world is done on credit. The actual money employed is wholly inadequate to provide for the magnitude of modern business transactions. Various substitutes for money have been developed, and these are generally in the form of credit instruments. Insurance has come to be recognized as one of the most important factors underlying these instruments. Credit requires stabilized conditions, and insurance is one of the credit-stabilizing forces.

Insurance and Economic Development

The institution of insurance is essentially a great reservoir of capital consisting of equitably proportioned small contributions from the many from which payments are made to the few who suffer loss. This reservoir, technically known as reserves, fulfills another important function, and that is the service of investment.

The assets of insurance companies in this country now exceed $14,000,000,000. The investment of these funds is controlled by the exercise of sound business sense under limitations imposed by law. Within such limits there is wide opportunity for social service, and so these insurance dollars are found actively at work in the interest of the people, industry and the government. These insurance dollars help maintain and develop our railroads. They help generate the power necessary to turn the wheels of industry. They help provide good roads and governmental improvements. They assist in developing conveniences which make for a happier and healthier community life, a more educated coming generation and higher standards of living. Insurance reserves are playing a vital part in our economic progress.

The Social Value of Insurance

All forms of insurance have a very real social value to the community. Let us consider life insurance for a moment in this connection. It enables the head of the family to project his hopes and ambitions to a time in the future after he shall have been taken away. Life insurance permits him to assure his children an adequate education, to start them properly on their journey through life, to safeguard the future independence of his widow, and to keep the family together after his death. This service is of great constructive importance in the development of the individual and the community.

There are many economic aspects to the social value of life insurance. Its beneficiaries are not economic burdens, but consumers of the products of industry who can pay their way. The primary problem confronting industry and commerce to-day is marketing production. Life insurance payments to beneficiaries are particularly helpful because they tend to stabilize and maintain the buying habits and buying power of insured consumers, particularly at a time when they are most likely to be affected by the passing of the breadwinner.

Relation to Current Business Operations

If a cross section of any type of business is studied, insurance will be found to be playing an important part therein. For illustration, let us again turn to fire insurance. When times are prosperous, manufacturers have large supplies of raw materials, stores are well stocked, and the institution of fire insurance is extending its watchful coverage over all of these values. When business is operating under a hand-to-mouth buying policy, fire insurance knows exactly what the situation is from the amount of insurance which is being carried upon the inventories of manufacturers and wholesalers. When a change takes place in the existing policy of buying, fire insurance will be among the first to know it as a result of changed demands for protection.

Until a business man suffers from the results of a fire, he often does not thoroughly appreciate the full effect of it. From his fire insurance company he receives a sum of money equivalent to the actual value of his physical loss, but his current income may be discontinued. During the period of the shut-down a large part of his overhead may have to be met. His investments made to build his trade, as well as to recruit and train proper operating forces, may be materially affected. The institution of fire insurance may be utilized in lending a helping hand in these cases. Many business men have been able to pay their rent as a result of availing themselves of certain types of fire insurance policies, while others have secured at regular intervals an income to take the place of that which has been lost during the period of reconstruction. The latter form of protection is of comparatively recent origin and is known as Use and Occupancy Insurance.

Insurance and Foreign Trade

England has set an example in commercial cooperation which may well challenge our attention. Her successful foreign trade is largely predicated on the fact that shipping, finance and insurance are interrelated through the medium of British interests exclusively. In so far as insurance protection in connection with our own foreign trade is concerned, our own commercial interests may well take a leaf from England's book and conclude that it is the part of business wisdom—to say nothing of loyalty—to see to it that American shipping is insured in American companies.

Group Insurance in Industry

No form of insurance bears as close a relationship to the human side of industry as does that infant prodigy of the insurance world which is known as Group Insurance. To appreciate the economic importance of a program of insurance administered directly in the interests of the human factor in industry, one need only reflect on the substantial ratio of operating expense which is represented by cost of labor.

Briefly stated, Group Insurance is mass protection of the employees of any one employer or corporation, issued at wholesale rates and without medical examination. Firms with fewer than fifty employees are not legally eligible for Group Life Insurance. Group Insurance is usually written to protect all employees actively working for the employer, regardless of age, sex, condition of health, race or nationality, or hazard of employment. A policy of Group Insurance can be issued only to an employer, but it is a current practice in the large majority of cases to have the insured employees contribute substantially to the low wholesale cost of the program. Such programs are called contributory Group Insurance and they can legally be made effective only when not less than 75 per cent. of the eligible employees agree to contribute their designated share of the premium, which often is fixed at the rate of 60 cents per month per thousand dollars of insurance.

In the light of the fact that the first commercial policy of Group Insurance, as such, was issued in 1911 (only sixteen years ago) the outstanding popularity of the plan is evidenced by the fact that at the present time approximately 15,000 firms in the United States and Canada carry Group Life Insurance contracts protecting the lives of approximately 4,700,000 employees with almost $6,000,000,000 of Group Life Insurance. In the packing industry alone it is estimated that employers have cooperated through the medium of Group Life Insurance to help approximately 67,000 workers establish for themselves and their families total Group Life Insurance protection aggregating approximately $90,000,000.

That the fundamental philosophy of Group Insurance appeals strongly to both employers and employees is evidenced by the steady and rapidly increasing popularity of this form of insurance. In this connection it is interesting to note that while in the four calendar years from 1923 to 1926, inclusive, the amount of Ordinary Insurance in force increased 40 per cent., and the amount of Industrial Insurance 47 per cent., the amount of Group Life Insurance in force increased 170 per cent.

It is noteworthy that in the last few years Group Insurance has grown not alone vertically in amount of Group Life Insurance in force but also horizontally in the development of group policies protecting workers also against the hazard of sickness and non-occupational accident, accidental death and dismemberment, and poverty in old age. This protection is afforded through policies of Group Health Insurance; Group Accidental Death and Dismemberment Insurance; and Group Pension Policies. In addition, Group Insured Thrift contracts have been developed to help workers systematically accumulate savings protected by life insurance. Under all these programs the worker's contribution is collected automatically by payroll deductions authorized in advance in writing by the contributing employee.

A 1927 model Group Insurance Program classifies the workers on the basis of the amount of their earnings. Usually from three to five such classes are established; each class embracing all employees whose earnings fall within certain income brackets. Then the insurance benefits and the employee's contributions are graduated under these classes in accordance with the employee's economic status and his capacity to pay premiums. One such program recently adopted by the Cleveland Railway Company offers workers for a modest fixed weekly contribution an all in one Group Insurance "package": Life Insurance, including total and permanent disability benefits; Group Sickness and Non-occupational Accident Benefits; Accidental Death and Dismemberment Insurance, and old age pension benefits. The employer considers it good business to pay the balance of the net cost over and above the employees' contributions, and the popularity of the plan was shown by the fact that 98 per cent. of the eligible employees voluntarily applied for the protection within a few days.

It has been well said that Group Insurance is an adventure in cooperation, and this means not only cooperation as between employer and employees, but also cooperation of the insuring company with both employees and employer. As soon as the Group Insurance protection actually becomes effective, the progressive insurance company embarks upon a program of service which goes far beyond the actual insurance benefits provided under the policies.

At least one company offers, without any added cost beyond the premiums themselves, the services of trained, graduate visiting nurses who pay periodic visits to the homes of all employees absent on account of sickness; who render expert visiting nursing care under the instructions of the attending physician, and who regularly keep the employer advised of the patient's progress. Periodically the employees are furnished also with simple, authoritative health booklets which carry into their homes sensible messages of hygiene and right living and which tend to dispel the ignorance which is responsible for so much of the sickness and disease that taxes American industry so heavily every year. Safety Engineers are furnished to go into the plants on inspection trips and to inaugurate safety campaigns among the employees. Experts on ventilation, lighting, and heating are available to cooperate in the improvement of working conditions. Physicians who specialize on industrial hygiene cooperate in the improvement of both living and working conditions. This service is not philanthropy. It is good business. It pays. It tends to promote good-will among workers. It pays the employer because it tends to improve the health and efficiency of workers and to reduce absenteeism. It pays the insurance company because it tends to reduce claims, and it is noteworthy that, with several companies, favorable claim experience is reflected in the reduction of the Group Insurance cost to the employer through the payment of dividends or through rate reductions.

Pensions in Industry

Reference has already been made to the inclusion of pension benefits in Group Insurance programs, but the importance of the pension situation in industry clearly warrants further comment.

For many years sound business practice has definitely recognized the clear-cut necessity of evaluating depreciation in machinery and equipment and of periodically charging off such depreciation in the balance sheet. Generally speaking, business has given far less attention and much less businesslike consideration to the even more important subject of depreciation in the value of human equipment. Mechanical equipment can be scrapped and sent to the junk heap without compunction. No employer in this room would be willing or could afford to accord the same treatment to human equipment that has become ineffective and antiquated through years of faithful service devoted to the employer's business.

This natural sentiment existing in the hearts and minds of American business men has over the years led to the adoption of numerous pension programs both of an informal and formal nature. The 1925 report of the National Industrial Conference Board cites the existence of formal Employees' Pension Plans in 245 American business institutions employing over 2,815,000 men and women.

It is unfortunate that so many pension programs conceived in a sentimental manner have also been inaugurated and administered in the same way rather than as business programs scientifically based on sound actuarial practice. While mechanical depreciation has been an annual charge in many balance sheets, many firms contractually or morally committed to pension programs have made financial provision for depreciation in human equipment only when the bill was actually presented by the arrival of individual employees at retirement age. This system obviously fails during the passage of years to take into account the steadily accruing obligation on account of length and service rendered by employees who will subsequently become eligible for pension payments. As in the case of mechanical equipment, sound business practice dictates the wisdom of making definite provision from each year's earnings to provide appropriate pensions, that is, to provide depreciation expense in human equipment. Sound practice, as in the case of machinery, etc., requires that a liability should clearly be charged annually to the cost of production during the employee's productive years to provide for his retirement.

Experience has shown that pension programs are full of financial pitfalls. For illustration, an unusually favorable mortality experience, sustained for many years among the retired employees of an establishment, may well bankrupt an otherwise soundly conceived pension program. During recent years life insurance has given increasing attention to this important problem. Some life insurance companies are well equipped to help industry solve its pension problems not only by sound actuarial advice and by underwriting the pension risk, but also by helping sell to the employees contributory pension programs under which the retirement benefits to the employee can be increased without corresponding cost to the employer.

Corporation and Partnership Insurance

Andrew Carnegie is credited with a statement to the effect that if his machinery and plants were destroyed and his men left to him, he would have no trouble to regain commercial supremacy; but, if he lost his men, the retention of his machines would be useless.

The importance of man power in industry cannot be over-estimated. Business progresses through the team work of human beings; but some pull a bigger load than others. The value to business of the units in that team depends on the facility or cost of replacement. There is a definite measure by which material replacement can be computed. There is, however, no standard by which the replacement of an executive may be measured. His work depends on his mind—his personality and his experience.

It is obvious that the loss by death of an important executive may be a serious blow to industry. Business may undertake to indemnify itself in case of such losses, through protection afforded by business or partnership or corporation policies.

An executive's salary is seldom a true measure of his total worth to his company. The president of a large corporation may get $100,000 a year salary. The minimum wage in his corporation may be $1000 a year for unskilled labor. Yet his corporation regards him as many times more valuable than a hundred laborers whose combined income equals his. If his corporation wishes to make provision for indemnifying itself for his loss by death, it might conservatively place some millions of dollars as the actual money value of the individual by whom $100,000 salary is earned.

Investors are influenced by their opinion of the man at the helm. If they know that the death of that man, while depriving the company of his services, would be offset by the payment to that company of a large sum of money by an insurance company, they would be more willing to risk investments in that particular enterprise. Credit and bank loans are also favorably affected when such insurance exists.

The mechanics of such business insurance are relatively simple since in principle it does not vary much from the forms which the insured may take out himself for the benefit of his family. A corporation may purchase insurance on its important executives. Partners may be insured for the benefit of each other.

The extent of these forms of business insurance is, in a measure, indicated by figures recently prepared by an insurance paper. It was estimated that there are more than 13,000 men in this country insured for more than $50,000. Another list shows 200 individuals on the life of each of whom at least a million dollars of insurance is in force. Many of these policies represent personal insurance. A large number of them undoubtedly are corporation or partnership policies.

CONTINGENT BUSINESS LIABILITY AND WORKMEN'S COMPENSATION INSURANCE

A definitely known expense can be readily provided for in the overhead cost of doing business. Contingent liabilities, however, present a real problem in cost accounting the various factors entering into the price of a commodity. Every employer is confronted with various contingent liabilities. Casualty and surety companies underwrite these contingent liabilities for definite fixed premiums. Then, if the contingent liability becomes an actual liability, the insurance company pays. For illustrative purposes, let us briefly consider Workmen's Compensation Insurance.

One of the most difficult liabilities which employers face is the possibility of accidents to their employees. Prior to 1910, the principles of common law liability regulated the relationship between American employers and their employees in the event of accidents. This meant that the employer had three defences which he might use against the claims of injured employees. These were: assumption of risk; contributory negligence; and the fellow-servant rule. The system of common law liability was unfair to all concerned. In 1910 a new system was introduced in our industrial life and that was Workmen's Compensation. State after state adopted it by proper legislation and to-day we find forty-four states in which this principle is applied.

The effect of Workmen's Compensation legislation has been to shift the cost of accidents to industry. Injured employees are assured of definite payments made in accordance with legal schedules, generally regardless of their negligence. Proper machinery has been set up in the various states for administering Workmen's Compensation laws to the end that the interests of employees, employers and the public are safeguarded. Employers who avail themselves of Workmen's Compensation are free of any legal liability to their injured employees, providing they have met the requirements of the law which relates to their financial ability to pay the benefits awarded to injured employees. Here is where insurance comes in. Comparatively few employers can afford to self-insure either because of the risk involved or on account of their unwillingness to use working capital for setting up the necessary reserves. Furthermore, the belief is maintained by business men generally that this is a highly technical function and one which can be better administered by an insurance company than by themselves.

The cost of Workmen's Compensation insurance depends primarily upon the amount of benefits, prescribed by law, to be paid to injured employees. The trend of benefits is constantly upward. There is scarcely a session of a state legislature which does not enact some more liberal benefit. Industrial commissions in the course of their deliberations are also contributing toward this liberalizing trend. There can be no argument about the justice of fair and reasonable benefits payable promptly to the employee at a time when he needs them most. As the cost of Workmen's Compensation is charged to overhead expense, it is a factor which must be considered by industry, particularly if it assumes such proportions that it affects the possibilities of successfully meeting competition.

Automobile Insurance in Industry

Of the other types of contingent liability confronting industry, one of the most important is the danger of claims arising from the operation of automobiles. With twenty million cars using our streets and roads, there is a constantly growing toll of impaired life and property. A ray of hope, though, appears when we are told that the number of accidents per thousand cars has decreased since 1915. Such accidents, however, may mean bankruptcy to some concerns or serious impairment of their operating capital where substantial liability for damages has been incurred. Again the insurance companies have been alert to the changing needs of industry and, as a result, have created automobile insurance to absorb contingent liabilities which may arise from automobile accidents. Originally this form of insurance protected the individual car and then it developed into protection for groups of cars of a common employer.

To-day we find the insurance companies encouraging and assisting industry to reduce automobile accidents through merit rating systems used in the determination of premium rates in cases where a particular business operates a fleet of cars. There is another development which is taking place now and which relates to employers whose salesmen canvass their territories in either their own cars or those provided for them. In the event of accidents caused by the cars driven by these salesmen there arise many border-line cases, the effect of which demonstrates the importance of employers being properly insured against contingent liability even in the event of accidents due to automobiles owned by the salesmen themselves but driven in the course of their usual business occupation.

Conserving Property and Life Values for Industry

When a building burns, the energy which was responsible for its erection is gone forever. It is true that new capital secured from the fire insurance company can replace it, but the new building represents additional energy which might have been more advantageously used. When a life passes on, there is lost to the community many years of experience and training as well as a substantial amount of money which has been expended for its development. The fewer preventable losses of either life or property values which industry has to suffer, the stronger and more profitable it will be. As the very essence of insurance service is based on these economic losses, it is natural that insurance companies should know more about preventing them than others. Insurance has been a leader in an endeavor to arouse industry to the importance of utilizing existing information and experts to the end that losses might be reduced. All of the work of the insurance companies will be of little avail, though, unless industry properly cooperates. To-day millions of dollars annually are being spent by the institution of insurance to fulfill its assumed obligations to policyholders and the public as an educational agency to prolong lives and property.

SUMMARY

The risk-bearing institution to-day fulfills a dual function in our economic structure. It endeavors to assist industry to prevent various forms of insurable losses. In the event of these losses it indemnifies or pays definite agreed upon sums of money. The effect of insurance service is to introduce stability in our credit structure which underlies most business transactions. As industry grows and new conditions present forms of contingent liabilities which might materially affect the business welfare, insurance is keeping pace too, continually endeavoring to develop the proper forms of insurance coverage.

The success of the institution of insurance has been due primarily to the principle of private initiative on the part of those associated with it, as well as team-play between them and those responsible for the successful conduct and operation of industry. Insurance needs industry and industry needs insurance. As each is so dependent upon the other, an even better understanding than exists to-day between the two will not only be materially helpful, but should make for even greater prosperity of both. Toward this end, no more effective contribution is being made than through the service insurance is endeavoring to render industry by helping raise economic standards and improve living and working conditions for that great body of men and women who really constitute American industry.

SPUN LOGS[1]

EDWIN E. SLOSSON

Dr. Slosson, late Director of Science Service, Washington, D. C., delivered this address from Station WCAP, Washington, D. C., under the auspices of the National Research Council and Science Service and the direction of Mr. W. E. Tisdale, 1925.

Science consists in learning from nature how to surpass nature. The chemist in particular is never content till he can do something that his teacher can't. In the field of fabrics he has made dyes more brilliant than any to be found in the three kingdoms of nature, animal, vegetable and mineral, and now he is inventing new textiles to tint with them. He beat the indigo plant on its own ground, and carried off the blue ribbon. He challenged a snail to a race, the Mediterranean mollusk that produced the "royal purple" of the ancients, and beat him, for now the chemist is making a better dye out of coal tar and making it so cheap that anybody can afford it.

Now the chemist is engaged in another competition. His rival this time is a worm. He has challenged the champion spinner of the world, one who has, for over four thousand years, held the prize for the finest and most flossy fiber, the silk worm. The worm chews up mulberry leaves and spins out though his mouth a silk thread five hundred yards long. The chemist grinds up logs of wood and spins out by means of his mechanical spinnerets a silky thread as long as he likes, for the machines run day and night and all the week long, throughout the year. And the thread the chemist makes is more uniform in size and substance, for the worm, although he was practising the spinning art thousands of years before man appeared upon the earth, has never yet learned how to produce a perfectly smooth and even filament.

Not long ago I had a chance to inspect a rayon plant, and it was fascinating to watch the process. At one end of the factory spruce logs are floated in. At the other end skeins of glossy yarn are being shipped out. The wood pulp costs about five cents a pound and the synthetic silk sells for two dollars a pound, and more than that when you buy it in the form of neckties, shirts, sweaters and stockings.

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[1] By permission of the author. Reprinted from *The Scientific Monthly*, December, 1925.

And you buy it oftener than you think you do if you prefer to patronize worms rather than men. For nearly two thirds of what seems to you silk comes now-a-days from chemistry instead of the cocoon. But it is not the chemist's fault that he has to disguise himself as a worm in order to market his product. It is rather the fault of the people who have a prejudice for things that are old and familiar, and are unwilling to admit that their fellowmen can make anything as good as the plants, animals or insects that have been longer in the business. The chemist would be proud to claim all his creations, but often he has to stand by while the merchant timidly introduces them to the public as "near" something or "imitation" something, or, what is worse, keeps silent and lets the buyer infer that he is getting the same old stuff instead of something new and often something better.

The dictionary is a heavy and clumsy volume and can not keep up with the swift advance of science. That is why there is no common name yet for the thing that I am talking about, these synthetic fibers made from cellulose, although they have in the last ten years come into such common use. They are often called "artificial silk," or, what is worse, "imitation silk," although they are not the same as silk and should never pretend to be. Last year most of the manufacturers agreed to adopt, and introduce through advertising, a new name, "rayon," for all products of this sort, but some of the makers, those using the acetate process, refuse to accept this general term and stick to their own trade names, such as "celanese" and "lustron."

There are four different processes of making these synthetic fibers and very curiously they are all in actual use. There are now being built in the United States factories for each of the four rival processes.

They are easy to understand in a general way, though to run them so as to turn out a uniform and satisfactory thread is a delicate and difficult operation. They all use the same fundamental material, that is, the woody fiber that the chemist calls "cellulose," though some of them get it from timber and others from linters, the short bits of cotton that stick to the seeds after the long fiber has been picked off. This cellulose is the same stuff as paper is made of.

The first step is to get the cellulose into liquid form in order to squirt it out in a fine jet as the silk worm does. But you know it is not easy to dissolve wood, cotton or paper. Water will not dissolve it, otherwise our floors would be washed away whenever they were scrubbed, or the trees whenever it rained, or our clothes whenever they are cleaned. But certain strong acids or alkalis will serve as solvents for cellulose.

The first of these solvents to be used was nitric acid with which a French nobleman, Count Hilaire de Chardonnet, made an artificial silk in 1884. When nitric acid acts upon cotton it forms what is known as "nitrocellulose" or gun-cotton, the basis of smokeless powder. This can be dissolved in a mixture of alcohol and ether, forming a thick gummy liquid that we know as "collodion" and use as new skin when our natural integument gets scratched off. After the spinning process the nitric acid is eliminated so that the threads are no longer explosive or more inflammable than the original cotton.

The second process of making synthetic silk gets the cellulose into solution by using an alkali instead of an acid, strong ammonia with copper dissolved in it.

The third process also makes use of an alkali, in this case caustic soda, with the addition of carbon bisulfide, a vile smelling liquid that is used for killing gophers. This produces an orange-colored viscous liquid, and the product is known by the trade name of viscose. Four fifths of the synthetic silk is made by this method.

The fourth process employs an acid, concentrated acetic acid, familiar to use in dilute form as vinegar.

In whatever way the cellulose is dissolved the next step is to force the solution by pressure through glass tubes in the end of which are minute perforations, like fine pinholes, from 10 to 50 of them. The liquid squirts out of these pinholes in thin streams which are coagulated into fine filaments by running into water containing something to neutralize and wash away the solvent. These filaments are then caught up by revolving reels, twisted into a thread and dried in skeins. These are packed in 10-pound bundles containing 150,000 or 300,000 yards of yarn, according to the caliber. Each spinning machine in the great room is running off the thread at the rate of 45 yards a minute.

The final product is brought back almost to its original state, for it is a form of cellulose, except where acetic acid is used which leaves it as cellulose acetate. Rayon is chemically much the same as cotton in composition, but has the sheen of silk and takes dyes even more brilliantly, which accounts largely for its popularity with this color-loving generation. By weaving artificial and natural fibers together it is possible to dye the cloth two colors, for one dye will fix on the rayon and the other on the silk, so bringing out a design invisible in the original white weave. Novel and beautiful velvet brocades are now made by this method.

None of the synthetic fibers is as strong or elastic as natural silk. Their strength is from half to two thirds of the natural when dry, and much less when wet. Rayon when wet takes up forty per cent. of water and swells and weakens. The wet rayon is only a half or a quarter as strong as the dry, so these artificial fabrics should be handled tenderly while wet. The original strength returns on drying. The cellulose acetate does not weaken so much on wetting, because it does not absorb so much water. Whether this is an advantage or not depends on the advertiser. The viscose people claim that viscose underwear is the best because it absorbs the sweat and so keeps the skin dry and comfortable, summer and winter. The celanese people claim that celanese underwear is the best because it does not absorb sweat and so is chill-proof and comfortable, summer and winter. You pay your money and take your choice. In most fabrics it is found desirable to mix the rayon with wool, cotton or real silk, and so get both strength and luster.

When this business first started a few years ago, the manufacturers were so delighted at their new-found power to rival silk in luster that they went too far. They turned out satin that was too silky and slick, too glossy and glary. Now they are tempering their ambition for such lustrous fabrics, perhaps in compliance with an improvement in popular taste, and they are now working for softer tones and textures, by using finer filaments, and more of them, in a single thread. Some of the filaments now spun are more delicate than the floss of a silk cocoon. These new forms of the synthetic fiber are softer to the touch and less garish to the eye than the crude products of a few years back.

Manufacturers at first thought it necessary to make their synthetic substitutes resemble silk in sound as well as to the sight. So they fussed about to find a way of giving the new fabrics the "scroop" of the old. The "scroop" is the sound referred to by Poe in his "Raven" as:

> The silken soft uncertain
> Rustling of each purple curtain.

In those days, when a lady had a silk petticoat she wanted everybody to know it, and since etiquette then required that petticoats, unlike children, should be heard and not seen, she had to rely upon the scroop to impress her proud possession upon the public. But after a process for putting the scroop into synthetic silk had been discovered the style changed and it is no longer considered necessary for a lady to rustle.

A new point in favor of the artificial over the natural product is the discovery that cellulose acetate is more transparent to the ultra-violet rays than wool or silk. Now these invisible ultra-violet rays are supposed to be responsible for the beneficial effects of sunshine in stimulating the blood to resist disease, so we may expect improvement in public health if the synthetic fabrics become common wear.

Although all the four present processes of making synthetic silk were first developed in Europe, the United States now leads the world in its production and consumption. In the field of science we Americans do not distinguish ourselves on the kick-off but we beat the world in keeping the ball going when once it is put in play. The world's output of these artificial cellulose products for the present year is estimated at about 185,000,000 pounds, and American manufacturers made nearly a third of the total. We may reasonably expect that next year the United States will turn out 74,000,000 pounds, which will mean a 600 per cent. increase in the last five years.

About half of the output of rayon goes now into knit goods, especially hosiery, which is usually combined with cotton, wool or natural silk. For men's hose a mode of knitting called "plating" is commonly employed by which the inside surface of the sock is mercerized cotton and the outside is rayon, so getting the advantages of both kinds of thread.

In braid for dress trimmings the new material has almost entirely ousted natural silk.

Another use of these same cellulose synthetics, that is common but commonly unrecognized, is the thin, colorless, flexible transparent sheets, called "cellophane" or "visca," which wrap your candy or make a window in the envelope that brings you a check or bill.

This protean material seems to be a universal proxy. It can substitute for all sorts of substances. It is now appearing in the rôle of horsehair, Spanish lace, Smyrna rugs, Nottingham lace curtains and furs of various kinds. Sometime it may not be necessary to skin animals to get fur coats and collars, or to steal the silken blanket of the sleeping worm.

THE MAKING OF BUSINESS EXECUTIVES[1]

EUGENE G. GRACE

Mr. Grace, President of the Bethlehem Steel Corporation, delivered the following address before the Engineers' Society of Western Pennsylvania, Pittsburgh, Jan. 30, 1928.

You have asked me to speak on what kind of training is required for engineers in order to equip them to become successful business executives. My first impulse is, therefore, to ask who are some of the engineers of our time who have become great business executives. Let me name some of those who come to mind:

Some Outstanding Engineer Executives

General George W. Goethals, at whose death a few days ago so many of us grieved, was a product of New York City public schools and later graduated with honors at West Point. He was picked to become chief engineer of the building of the Panama Canal, one of the greatest engineering achievements in history, spending hundreds of millions of public money, always with efficiency and economy. What was General Goethals' outstanding characteristic? Ability to organize and direct the activities of men—a genius at administration.

General W. W. Atterbury, President of the Pennsylvania Railroad, largest transportation enterprise in the world, an executive compelled to think in terms of every phase of engineering—civil, mechanical, metallurgical, electrical, steam, commercial, human. You will remember Kipling's lines addressed to Captain Bob Evans, the famous naval officer of the Spanish War:

> Zogbaum can handle his pen, and I can take care of mine,
> But you can handle ten thousand tons skyhooting through the brine.

Kipling marveled at the feat which this naval captain performed; what shall we say of a man capable of directing the energies of an army of 200,000 human beings, and wisely guiding the trusteeship for

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[1] By permission of the author.

$2,500,000,000 worth of property representing the savings of tens of thousands of men and women? And what is Atterbury's outstanding accomplishment? Ability to think clearly and quickly; and to decide and act; genius for organization, believing in organization, able to command the loyalty and enthusiasm of those whom he leads and inspires.

Herbert Hoover, a mining engineer, practising his chosen profession in many parts of the world, ready for service to humanity and which he so ably gave at the very outbreak of the world war when the invasion of Belgium by the German Army called for someone to organize the feeding of the Belgian people. What is Hoover's distinctive quality? Ability to command the loyalty and confidence of the men who serve under him, a scientific approach to the study of business problems, and vision in foreseeing what needs to be done.

John Hays Hammond, again a mining engineer, attaining his greatest engineering eminence as a consultant for Cecil Rhodes in South Africa. Along with his professional efforts, John Hays Hammond became a great world citizen and ably represented this country on various diplomatic missions. What, then, is his most notable characteristic? Mr. Hammond is, above all, a philosopher, seeing big things in their proper mutual relations, thus enabling him to become, in the highest sense of the word, a business statesman.

Mr. Schwab's Executive Qualities

May I call attention to one other name entitled, as I believe, to be mentioned among the outstanding engineers of our time? This man is not a college graduate; he obtained his engineering insight and skill in the hard school of rugged experience in steel mills, working in the ranks alongside the man in overalls—Charles M. Schwab. Beginning work right here in Pittsburgh, just fifty years ago, always amazingly energetic and active, full of dreams and visions, yet practical and sound; arriving at an early age to the highest executive office of the largest steel company in the industry and 25 years later as President of the American Iron and Steel Institute, still leading.

I have known Mr. Schwab and loved him deeply for upwards of a quarter of a century. It has been my privilege to be associated with him in the daily conduct of business perhaps more closely than anyone else. His vision, his boundless optimism, his over-flowing good humor have been a source of inspiration to me, as they have to so many others. What is Mr. Schwab's most characteristic quality? I would say that it is two-fold: First, his ability and willingness to delegate authority to subordinates, and, having delegated that power, his insistence that they exercise it. Second, his desire to see other men advance and make money. I have never seen a man who took such enthusiastic delight in seeing those around him happy and successful.

Opportunities in Commercial and Human Engineering

In the careers of the men to whom I have referred we find typified the development of the chief problems of engineering. The first is to shape and direct the forces of nature and thus to bring the world's resources to add to the comfort and welfare of mankind. That, in a word, is the problem of production. Engineers have made a supreme contribution to the solution of that problem. But I feel that we have two somewhat newer branches of engineering which must command more and more of our attention. Those are what might be termed commercial and human engineering. Of what value is all our efficiency in production if we do not distribute efficiently, economically and effectively? And of what value is any of it unless we can add to the happiness and deeper satisfaction of those engaged in industry, as well as those who enjoy its products?

I predict that the outstanding advances in business over the next ten years will be in improved merchandising and distributing methods. Herein lies a wide field of opportunity for the engineer.

We have briefly reviewed certain qualities of engineers who have become successful business executives.

Importance of Sound Judgment

Is it possible for us to say that the material success of all of these men was due to any one characteristic common to each one of them? Indeed, I venture to assert that there is one quality which, in the last analysis, is determining as to whether any man shall realize material success in this world of ours. That quality—so notable in the character of each one of the men I have named—is *sound judgment.*

Moments arise in every life when it is necessary to say "yes" or to say "no" to a particular proposition or to a proposed line of action. It is the man who says "yes" at the proper time and "no" at the proper time who, in the final analysis, realizes business success. The ability to do this wisely is the mark of sound judgment, and such ability is necessary in a business executive.

I have known many business men seemingly slow in their mental processes, possessed apparently of little imagination and of none of the flair which gives fascination to so many characters, and yet who, when crises come—be they big or be they little—are able to so steer their business courses that they move in the right direction instead of into shallow waters or upon the rocks of trouble.

What is the basis for sound judgment and what makes a man able to judge wisely? Is this ability capable of development and training?

He Judges Wisely Who Observes Accurately

It seems to me we generally find that the man who judges wisely is usually the man who has observed accurately in the first place. He has seen and analyzed correctly that which has passed before him. He has reasoned out in his own mind the relationships of the things which he has seen; he has noticed the effects which have followed from causes which have come under his own observation—and he has seen these things straight. And that is the most difficult thing in the world to do!

If I was to prescribe one process in the training of men fundamental to success in any direction, it would be thorough-going training in the habit of accurate observation. It is a habit which every one of us should be seeking ever more to perfect.

Those of us who are engaged in large business undertakings know that there is nothing of more importance in enabling us to make wise decisions on policies which come before us for review every day, then our ability to obtain accurate information from the men under us. How often do men come to us in perfect good faith making reports concerning facts or events, when we are able to know, even without having the primary facts, that the information we are receiving is inaccurate, not because the man does not believe his information to be accurate, but because he does not know how to see clearly and precisely.

Will you think I am venturing upon a field which has no relationship to the subject before me if I make a suggestion which might well be considered by the educational authorities of our country? And that is this: From the moment children begin their studies in the grammar schools, even in the lowest grades, give them daily some training in accurate observation. Even in our colleges I think it would be wise if the students were called upon to devote a certain amount of their time regularly to a definite exercise in the practice of observation.

I think we all fully realize that accuracy is fundamental in technical education. We deal in weights and measures. We must be accurate. There can be no guesswork in the design of a structure to carry a load or in the design of a machine to develop or exert a required amount of power. This is a basic principle underlying the education of the engineer. Because of the character of his training it tends possibly to a narrowness in his education and it therefore should be supplemented by cultural and business courses.

INDUSTRY'S RESPONSIBILITY TO AFFORD WIDER OPPORTUNITY TO THE ENGINEER

I believe, too, that upon our industries rests a responsibility for affording opportunity to the engineer, particularly the younger man, to supplement his school training and broaden it so that ultimately he will be fitted for the assumption of executive duties. In our own company we have worked out a comprehensive plan for initiating this. Each summer Bethlehem accepts for a ten weeks' probationary observation course a number of college graduates, most of them engineers, who have just completed their courses and who contemplate permanent employment with us.

The course is conducted for the two-fold purpose of giving serious applicants an opportunity to become familiar with Bethlehem's entire range of operations, including the manufacturing and selling ends of the business, before deciding in which branch they desire to develop, and for giving the management opportunity to judge of the fitness of the young man to enter the company's employment.

Officers of the corporation and plant executives, in daily addresses to the entire group, present fundamental facts underlying the conduct of the business. Plant work is assigned and every probationer is expected to perform manual labor. Questions and problems which develop in the course of the work are discussed with the department superintendents.

Not only is the hard work, in humble jobs, a test of these young men's endurance, but it serves to give them a background of sympathetic understanding of the workman's point of view which enables them as executives in later years to strike a just balance between their duty to the corporation which employs them and to the men who work under their direction. It further serves to give them an insight into all branches of the business at the very start of their careers.

An essential element in this Observation Course is the requirement that these young men shall write in good, clear English, an account of what they see from day to day and what it means to them. This training in the art of accurate expression thus becomes an important adjunct to the training in observation itself. And I may add that in my judgment few things are of more importance to us engineers than to learn something at least of the art of the use of effective English—and the better we use it the better executives we will make.

Scientific Approach to Problems of Industry

Just here, may I ask a question which perhaps I should have asked at the outset: What is an engineer, wherein does the equipment of the engineer differ from that of anyone else? If I could sum it up in a word I would say it consists in a scientific approach to the problems of industry. By that I mean: That one shall not decide questions upon a hit-or-miss basis, but rely upon exact information, calculated in the light of established principles and relations. Mr. Schwab likes to tell a story which, it seems to me, illustrates well the change which has come over modern business as distinguished from the business methods of a half a century ago.

When steel rails were first made in this country the specifications were largely based upon guesswork. One day the Carnegie Steel Company received from the Pennsylvania Railroad a new set of specifications calling for exact chemical formula in the composition of the rails. Captain Bill Jones had struggled with these specifications and found it very difficult to make the rails to meet them. He finally came to Mr. Schwab one day in a state of great despair and said: "Charlie, this damned chemistry is going to ruin the steel business." Today all sound business is conducted on a basis of scientific knowledge, and the engineer has made the greatest contribution to that fund of knowledge. And the reason why the engineer has made so great a contribution is because he has been trained in making his approach to business upon a scientific basis.

Some engineers emphasize the purely scientific aspects of their work, without relating it to the broader fields of its practical application. Perhaps that is one of the reasons why so many engineers have not realized the money rewards to which the creative character of their achievements entitled them.

Common Sense the Fundamental

George Gibbs was once asked what he thought should be the outstanding principle in the training of engineers in our colleges. His answer was characteristic of the man when he said:

> The thing which I learned in college which was of the greatest value to me in engineering was not so much the ability to calculate stresses, to design wheels

> and experiment with the elemental problems of chemistry. These things many a man learns, and learning no more becomes merely a draftsman in an engineering office. What I found of value in college was the study of the fundamentals of knowledge and those other things which gave me some kind of training in the exercise of common sense.

Here, as George Gibbs expresses it, we have the most important secret of all, the ability to exercise common sense. Thousands of engineers can design bridges, calculate strains and stresses, draw up specifications for machines, but the great engineer is the man who can tell whether or not the bridge or the machine should be built at all, where they should be built, and when.

Every material thing in this life has an economic aspect and there is always a question as to whether or not a thing should be built which is scientifically or mechanically perfect, or whether it should be built in a manner to serve the purpose required. It is so often necessary to determine whether any machine or any engineering project promises to be a commercial success, which is another way of asking the question of whether, if it is done, the necessary money will be forthcoming with which to pay for it.

These are very practical questions, calling always for exercise of common sense and sound judgment. And there is no magic or legerdemain whereby we may acquire these qualities. They can only grow out of experience, and a man very often with apparently the most restricted environment can through accurate observation acquire a knowledge of a subject and a vision concerning its meaning which will equip him for supreme attainments as a business executive.

Perhaps you will think, therefore, that in coming to you to discuss the high-sounding title of the subject entrusted to me I conclude with something of an anti-climax when I tell you that the way we engineers can obtain the best possible training to equip us for success as business executives is to: "Watch our step, and keep stepping!" Let us look at what is around us and look carefully. If we get the meaning of that which we are seeing from day to day and interpret that experience accurately, we are on the sure road to achievement. And if we go a little further as Steinmetz did, as Thomas A. Edison did, as Michael Pupin did, and not only see carefully what is around us and interpret it accurately, but are able then to project our minds into the field of the unknown, so that out of the seen we shall be able to gather a vision of the unseen, we shall then become truly great engineers and, perhaps, benefactors of mankind. For of such, I am proud to say, is the Kingdom of Engineers!

ENGINEERING[1]

CHARLES EDWARD LUCKE

Professor Lucke, Head of the Mechanical Engineering Department of Columbia University, delivered this lecture from radio station WEAF, New York, on the evening of May 10, 1926.

Engineering is a profession and as such stands beside law and medicine. It is not a trade, though it is in contact with the trades. It is not a business, even though it has become a necessity to modern big businesses. Nor is it a science, though based on the exact sciences of physics, chemistry, and mathematics, and in its practice the engineering method is essentially scientific.

Engineering is concerned with utility, with the creation of services and things for public use, especially new kinds, better, more useful or more economical than were available before. All of the discoveries of scientific study and research are sought by the engineer as a possible basis for some new sort of product, some improved process, or some better public service. The development stage, from the conception, the way in which some betterment might be effected, to its commercial realization, and, in addition, the most economical handling of the new thing, is strictly the engineer's affair. In this he acts as a director of the enterprise or technical expert over the whole or over any one of the more important or complicated parts. It is here that engineering becomes a bond between the activities of other groups, including all of the trades, the labor and skill of which do the actual work planned by the engineer; the bankers, who must find the funds to finance the enterprise; the industrial leaders, whose administration is needed; the merchants, who link producer with consumer; and at every step the lawyers, or, in the case of problems of more strictly public nature, the appropriate governmental departments or bureaus.

With professional activities so widespread as this, and so intimately knitted into the fabric of affairs of all the advanced nations, it is rather strange that so small a part of the public does really understand what engineering means, or what constitutes an engineer. Many explanations for this situation have been advanced, but of them all only two need be mentioned. The first is that the engineer acting in his professional capacity is usually an agent, not a principal; he is working out something or directing some undertaking for some one else, an individual, a corporation, or the Government, and the public hears of the principal but not of the agent. The second explanation is found in the attitude of the engineer himself, who, dealing with *things* primarily, the materials and the forces of nature, is so absorbed in the great natural laws, which he is trying to utilize in some new or better way, that he has developed a sort of impersonal attitude and an unwillingness to talk. The *thing* is so big and so absorbing that mere words seem trivial and inadequate, and talk a waste of valuable time.

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Every discovery in the basic sciences, or in the principles of engineering, every invention and every engineering development, gives birth to a new family of discoveries, inventions, principles, methods, and products, and this process results in a multiplication of ideas and useful results every year. As a consequence, engineering is growing in scope at an ever-accelerating rate in a sort of geometrical progression, somewhat like the multiple compounding of interest on investments. This fact has forced engineers, in the practice of their profession, to limit their activities to some one division in which it is possible for one man to become really expert, an authority; and so engineering itself has divided into definite branches, each well recognized. This division is still going on, and there is every reason to believe that further division will be made in the future, and new branches of the profession will be recognized as legitimate.

Major Classifications

At the present time there are four major divisions of engineering that are fully recognized, and many others only partly accepted as proper divisions, and so of minor importance, either because of smallness of number of members or because of lack of real justification.

The four major divisions include mining and metallurgical engineering, civil engineering, mechanical engineering, and electrical engineering.

The Mining Engineer concerns himself with the location of mineral deposits, including all the fuels and the ores of the metals, but it is his special problem to find and to apply the most economical methods of getting these natural resources out of the ground and into the general market for use. In the case of some of these materials he also undertakes the development of methods of treatment to get from them the greatest values or most useful materials derivable from them; and in the case of metals the metallurgical engineer directly cooperates by receiving the ores, removing the crude metal, and refining and treating each part up to the point of producing metals of all required properties in the most useful standard shapes and sizes.

The Civil Engineer plans and directs the construction of the great public works; highways and railroads; bridges and tunnels; river and harbor improvements; canals; water supply and sewage systems, including big-scale sanitation and land-reclamation projects, and other constructions of related nature.

The Mechanical Engineer deals with machinery of all kinds and with related tools, appliances, implements and apparatus, mainly constructed of metal. This includes machinery for generating power from any of the fuels, or from the water of streams; machinery utilizing power to manufacture some commodity, the so-called process machinery to produce textiles, cigarettes, printing, metal and wooden goods; machinery for some special service, such as pumping and refrigeration, heating and ventilating; machinery and apparatus for the other divisions of engineering to use, such as mine hoists, blowing engines for ore smelters, dredges and excavators, and equipment for chemical processes. It also includes that special large and important class, the machinery of transportation, including the driven or carrying vehicles, steam and motor ships and motorboats, locomotives and rail cars, automobiles, trucks and tractors, and aircraft; and, in addition, every sort of equipment for fuel utilization for any purpose whatever.

The Electrical Engineer, as the name implies, is skilled in all that concerns electricity and magnetism. He assumes responsibility for the utilization of electrical and magnetic principles, the development of equipment to get the most practical and economical results, and also, in the many cases where this is complicated, he undertakes its most efficient handling when it is put to work. This equipment includes electric generators for converting the mechanical power generated by engines and turbines into electricity; electric motors for converting electricity back again into mechanical power; and also the transmission of electric power from any number of generators to distant motors in any number. This electric transmission includes that large-scale enterprise of connecting many central power-generating stations with each other and with widespread transmission systems, even extending across several states, now known as superpower. In addition, there must be noted innumerable electrical appliances utilizing electricity as such, as distinguished from its utilization for power. Into this group fall the electric heating appliances, such as the large furnaces of the electro-chemical industry, and also the electric lamp, the basis of all modern illumination. Finally, there is the particularly important and perhaps best-known class of apparatus in which electricity serves as the key to communication, that of the telegraph, telephone, and radio systems, which, acting with transportation, accomplish the linking of distant places, bringing their people and their products together.

Engineering Societies

The engineering profession is a highly organized one, and the evidence of this, independent of its actual practice day by day, is found in the engineering societies, and in a most voluminous and fast-growing body of literature in the form of books and periodicals. Each of the four major divisions of engineering is represented by a national society in this country, with an aggregate membership of over fifty-five thousand, cooperation being secured through a central organization, which is in effect the national representative of the engineering profession. There are equivalent societies abroad, all maintaining contact and working together for the advance of engineering, without regard to language or national boundaries. In fact, engineering has developed a sort of international language of its own—its terms, its drawings, its methods, its materials, its appliances, and its products are understood by the engineers of all nations, regardless of their spoken language.

In addition to the purely professional societies of the four major divisions noted, and perhaps a dozen or so minor ones, such as the chemical, marine, railroad, heating and ventilating, refrigeration, and automobile groups, there are perhaps a hundred semi-professional associations in which engineers join with business men, with bankers, or with men of the skilled trades in promoting some common interest involving problems beyond the scope of any one class. Among these may be mentioned, for purposes of illustration, the National Electric Light Association, which is the central organization representing the business of generating electricity in central electric power stations and of its distribution to consumers, with a membership of fifteen thousand. The American Foundrymen and the Railroad Master Mechanics are also illustrations of this sort of associations of semi-professional, semi-business character. While no statistics are available, the aggregate membership must be somewhere near a quarter of a million in the United States alone.

TRAINING

To enter the engineering profession a man must be trained, and a fair percentage must, in addition, be well educated to insure the vision and sympathetic contact with other men, especially non-engineers, that is so necessary to leadership of even the best-trained professional man. This training and education of engineers is also highly organized both in this country and abroad, and the very large number of students graduated each year by the engineering schools is immediately absorbed, with at least an equal number of men who succeed in rising from the ranks of the trades, and who, by study, qualify as professional engineers. In the engineering schools of the United States there are fifty-six thousand students enrolled, and eight thousand five hundred are graduated each year to begin the profession of engineering.

As a rule, the engineering schools of Europe are independent of the old universities, and in this country there are many such independent schools. It is quite typical of the United States, however, that most of our best universities have established engineering schools on a par with the law school, the medical school, and with the non-professional departments of university scholarship. This is regarded as a great step forward, because of the resulting contact between the representatives of the different professions affecting professional standards, and, in addition, the contact of the professional-school professors and students with the great body of non-professional scholars making up the rest of the university.

THE ENGINEERING INDUSTRY

In the practice of engineering probably the most characteristic element is the point of view of the professional engineer, the basis of the engineering method. This, while founded on the exact sciences of physics and chemistry, and, therefore, properly named scientific, does not stop here, but must, and actually does, include an economic factor and, in some cases, also a sociologic one. Briefly, the engineer considers himself always as having a problem to solve, a problem of utility of some sort. A way must be found to do something or get something done, and the best possible way. Perhaps that thing has never been done at all, or perhaps it has been done but not in a satisfactory way. The first stage in the solution of such a problem is to assemble all possible ways in which the thing might be done, drawing on history, on past practices, on established principles, and on recent discoveries. Extensive knowledge of the subject is essential here, but it alone is not sufficient, because there must be capacity to recognize what things might apply to the case, somewhat similar to the capacity of a judge in a court of law to distinguish relevant from irrelevant evidence, and to apply the proper law to the case. This is the period of exploration, and in it lies the same lure that forms the foundation and motive for any exploration. It calls for the courage and fortitude of the crusader who will not give up, and it brings the same reward—satisfaction.

It is quite the common thing for the engineer to discover that some of his possible solutions are new and patentable inventions, and it is in just this way that most of the really useful inventions are made. They are solutions of problems worked out in a systematic effort to do something that is needed. Incidentally, there are more inventions of this sort produced per year in the United States than anywhere else in the world, and this is direct evidence of the great activity and productive fertility of American engineers.

Of all the possible solutions of a problem, some will be more suitable in one respect and less so in others. Some will be best adapted to existing tools, to the skill of available labor or to most available materials, to such plant or manufacturing facilities as are at hand; some will be more efficient or have greater reliability than others, and some will be most pleasing to one or another class of users for whom the problem is being solved, whether they know it or not. These are all questions of relative suitability as measures of value of the possible solutions, quite independent of the other phase of economics, that of dollars and cents, costs and selling prices, as factors in value. Of the several possible solutions of the problem some will be adapted to cheaper raw materials, or be producible at lower production costs; some will require less investment in equipment or in stock than others, and, with the best combination of these factors, some of the solutions will be cheaper than others. In these studies of comparative economics in relation to possible solutions of a given problem, it is very rare indeed to find that any one solution is best in every respect, so rare as to be regarded as almost a miracle. Furthermore, it is almost equally unusual to find that the solution which is really best, as to qualities or elements of suitability for the intended purpose, is also the cheapest; more often it is the most costly. Then comes the real judicial responsibility of the engineer because a new problem has arisen.

Out of the too numerous solutions of the original problem of ways and means has now come the problem of economic selection, which requires an engineering decision. Engineers must make decisions, and in the long run they are themselves judged by their decisions, as is the case with other professional men, the lawyers and the physicians. All must be right much more often than wrong, and here the public is the final or real judge.

For a problem of major magnitude all this may take several years, as every doubtful point must be checked up and proved, even if costly experimentation is necessary, first in a laboratory and then later on a larger scale than is possible in a laboratory, but in the end there is always a clear conclusion, a real decision, and in it there is very little of the element of mere opinion, and no guessing. After the decision as to which solution of the problem will be the best, there comes actual commercialization under engineering direction, and finally the public receives a new product, or a new kind of service, or a better service of an old kind, without any knowledge of how it happened, and with no reference to the names of the engineers responsible for its creation. Thousands of such projects are under way all the time, and this will continue forever.

Public Interest

Public interest in and knowledge of engineering, while yet far less than in the case of law and medicine, is nevertheless on the increase, and there is every reason for more widespread and more precise understanding. Every one has personal contact with the physician at some time, and most people need the lawyer's advice periodically, but no similar direct need exists with regard to engineers. It is true that curiosity is aroused by contact of the public with some of the products of engineering and a mild interest excited, especially if the newspapers take up the matter. A more speedy ship on the transatlantic route, a new canal, an impressive water-power project, a better automobile, a more economical electric lamp, a reduction in the cost of electricity, and a thousand other such evidences of engineering success, may attract attention, but this is not real public interest in engineering.

Real public interest in engineering will come, and with it active public cooperation, with benefits to both the public and the profession, only when there is public understanding that engineering is everybody's business, more or less, and most intimately the business of some who may not as yet have discovered the fact.

There are three broad divisions of proper public interest in engineering: first, the general one of acceptance and utilization of engineering methods, products and engineering services; second, that of investment of funds in enterprises, the soundness of which are primarily matters of engineering determination; and third, that of careers for young men as engineers in the profession.

Considering the first item, that of general use of the productions of engineering. It must be remembered that engineering is fundamentally creative, and that in ever-increasing degree new ideas and methods, new materials, new products, produced from both old and new materials, and better or more economical services are not only being produced regularly and systematically but that this will go on indefinitely in an ever-increasing degree. This is surely a matter of interest to everybody as possible consumers, but it is of especial interest to business men in every line of business, because trade conditions must necessarily change in consequence. Rather more important than this, as affecting the life, security, and prosperity of the whole people, is the understanding of the engineering method, which is the broadening of scientific method to include economics, and then the adoption of this engineering method in all walks of life, in all sorts of affairs of business, and, especially, in matters of public relations and of government. This means, in effect, the elimination of untested mere opinion, of prejudice and mere tradition, of self-interest against general welfare and the substitution of facts and established principles, the substitution of that which is right and best, impersonally selected, impartially judged, and accepted only on proof of validity after survival over every known test.

The second rational basis for public interest in engineering is one of investment. This is especially important in countries where living conditions have advanced, as they have in the United States, to the point where it is possible for so large a part of the population to save some money from income, the surplus over living necessities being available for investment. It is, however, also important in other countries where correction of backward conditions may become possible by the adoption of similar methods, because the methods resulting in funds available for investment are the very methods that produce income for investments. Most of the important enterprises of the time, even those that superficially might seem to be mere exchange or trading affairs with none of the elements of creation of wealth in them, may in fact be founded on engineering, with values that have been increased by engineering. In many cases engineering has created a wholly new thing of real value, and so has actually produced wealth. No such undertaking is possible without capital, and the collection of capital through banks involves personal investments. The soundness of such activities as investments is a matter of engineering determination, subject, of course, to the usual reasonable safeguards of all business, classifiable as good management. It must therefore be recognized that engineering creates new investment opportunities that are natural consequences of the engineering method of creating wealth, not by robbing something to get something, but by true creation.

Finally, engineering as a career must be a matter of interest to the whole public concerned with the problem of most useful employment of its young men as a sociologic as well as an economic question, and especially is this the case with the parents of boys and the boys themselves. There is no more promising career conceivable today than that which engineering offers a young man of the right type. Everywhere, in every walk of life, are young men with the will to work, especially at jobs that are interesting and free of monotony, young men with the creative instinct, an inborn desire to make something. This is the same feeling that prompts the artist, the sculptor, the musician, the writer, the carpenter and the machinist, the tailor or the builder, the true business man and banker with pride in the business and its usefulness, rather than the profits that may be squeezed out of it, and fortunately this is the case with most that succeed. Every young man who feels that he would like to really do things, and there are many who would if only they were told the story of things to be done, is a possible recruit for the engineering army, and for him engineering is a possible career. There must, of course, be sufficient mental capacity to stand the test of training, to grasp the laws of nature that must be learned as part of the training, and to later on learn to play the game of solving the problems that are engineering as a sport where the game is the thing; a most absorbing, clean, satisfying and unselfish game, the game of making nature work for man as man works for himself and his fellow-man, the finest and greatest game in the world —engineering.

THE MYSTERY OF MORALE[1]

GEORGE J. ANDERSON

Mr. Anderson, President of the Consolidation Coal Company, delivered this address under the auspices of the Bureau of Personnel Administration, New York, Jan. 10, 1929.

My title is tantamount to a confession, perhaps for some a damaging admission. When a man states that he is dealing with something to him mysterious, he confesses at least an absence of dogma.

Frankly, I have not the slightest shame in thus facing the complexities of that vague, indefinable, yet nonetheless real element, called morale. Like the force of electricity, invisible and its origin unknown, we find morale easy to believe but hard to explain. We know that it can be generated and harnessed for work, or likewise that it can be deflected into needless, and sometimes dangerous, waste. We have seen examples of its power and we have learned lessons from its failure. Monarchs, and even despots, have shared with the leaders of democracy a keen appreciation of what miracles morale can perform and have sought with equal skill to promote and direct its force to their own ends. The captains of militarism have been no less alive to its value and its necessity than the captains of industry. In its broad sense, a study of morale need have no confines of class, race or time. It may be safely asserted that, in all eras and in all climes, those who had great tasks to perform which required either the use or the support of their fellow men, have sought to employ,—with touch however crude and with vision however blurred,—the strange instrument of morale.

For morale is a term that we ordinarily apply to men in the mass. Only rarely, and then to my mind with a certain inaccuracy, do we speak of the morale of an individual. Hence it is, fundamentally, a special study on which, in only the recent stages of mankind, have we obtained any genuine knowledge at all, and that even now relatively scant and fragmentary,—the group mind.

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[1] By permission of the author.

It is, therefore, in the light of these limitations that I venture to approach morale, as one ever approaches the unknown, with humility and with due respect. Indeed, for a mere industrialist, trained chiefly in the rough and ready psychology of the common task, to take any other attitude would be pure presumption. His theme would not be exhausted by all the specialists in the arts and sciences of the human life.

In the present instance, however, I am fortunate in being able to delimit strictly the boundless variety of territory in which morale is smelted and refined. We have not to do on this occasion with the peculiar morale of armies and of fighting men; nor with the no less specialized morale of the professions and the arts. We are not concerned with the morale of those who go down to the sea in ships, and become a small and solitary community on a deserted horizon; nor with the equally isolated groups upon the wide reaches of the plains. We are to consider the morale of industry, straining and sweating in massed ranks at the day's work, in the production, transportation, marketing and financing of the world's goods.

Even within these boundaries we may draw the lines still more narrowly. We are well aware that inside a modern industrial unit of any size exist special functions,—sales, operation, and finance,—in which morale is also similarly specialized to some degree. The effective group spirit of these departments is focused on contrasting problems, hence rests on different foundations and requires different stimuli to achieve the same results. We know also that the morale of the supervisory force in modern industry, from the lowest non-commissioned ranks of the foremen, up through the battalions and brigades to the commander-in-chief himself, is a different thing from the morale of the rank and file, though akin to it and a part of it. These, and many more, are nice distinctions which may be profitably left to other and more tightly drawn expositions.

For my present purpose, the theme is morale as an enlightened management of today deals with it in a single unit of industry, within the confines and the conflicts of a competitive system. And because, by the very nature of its proportions, the problem resolves itself so largely with the morale of the thousands enlisted in production, my comments will no doubt reflect this natural emphasis on morale for the great armies who labor and are heavy laden. So much, then, for a survey of the boundaries to our physical field of operation. It will not be so easy to define and to delimit the thing called morale itself.

MORALE: A COMPOUND

At the outset, I think we must frankly recognize that our mystery is not a single element but a compound. Generally speaking, we are quite conscious of the fact that morale results from a peculiar combination of the physical, the mental and the spiritual. From that point of view, it is a compound of body, mind and soul. If those with the quantitative mind press for an opinion as to the dominant factor, one takes refuge in the parable as to the most important leg of a three-legged stool. The vital fact is that, while there are three legs, there is but one stool. Unfortunately for the parable, while the three legs of the stool are fixed, each resting upon its own spot and without interference one with the other, the physical, mental and spiritual parts of morale offer no such fixity or separation. They act and interact, advance and recede, within the ferment of our mysterious compound.

There is another interrelation of strange factors. Even in studying a group so homogeneous, in the economic sense, as the rank and file of modern industry, from the very composition of American life, it may be the least homogeneous in another view. Into industrial morale will enter all the strange compound of heredity, environment and race that adheres to the particular mixture. In the American working group this infinite variety never stales, except in stagnant communities, and in the matter of racial traits, the contribution is especially diverse. Over and above what we all will instantly recognize as to the variety of our so-called "native stock" from colonial times, reflect upon the complexity of other elements. Need I say that the problem of successful morale among the volatile French-Canadian textile workers of New England is one thing, and among the stolid Slavs of the steel centers is another; in the clothing industry, one thing among the keen Jewish dispersion of all nations and another among the proud Italians; one thing among the plodding German craftsmen, and another among the care-free Negro miners?

We know full well that all these variations exist. We cannot pretend, in equal fullness, to understand all that they imply, or always and everywhere to reckon with the fine shades of problems which they present. In the face of this compound, also, we must seek some refuge from its baffling perplexities. Hence we conceal our doubts and our ignorance alike behind the secure barricade of our belief that somehow, after all, human nature is basically about the same. The hope in a successful outcome of our task sustains us that a group of men, engaged in common toil, will react and respond similarly to certain elemental things.

Then there is one more compound which cannot be safely ignored in laying out the foundation for morale building. We have noted the compound of that great trinity which belongs to man because he is man,—body, mind and soul. We have just recorded the compound which adheres to men in industry from their past,—their heredity, their youthful environment, their race. And now we come to a compound from their present. Even though the livelihood of men may dominate their lives,—and, too often, it does so whether by dire necessity or mistaken choice,—it is not the whole of life. "Man shall not live by bread alone," runs the memorable saying. Nor does he live *for* bread alone. From the home he goes forth each day to the morning shift; through all the hours of labor, the home life is a shadowy curtain behind the industrial scene; and at the close of the play, he leaves the stage to return to it. At leisure are determined many of the elements which he brings to the mass morale. For the probable compounds, and the possible conflicts, of leisure morale and work morale are many. Always an important factor, this becomes even more vital with decreasing hours of labor. From millions of homes and a multitude of leisure hours are poured into the processes of industry bewildering ingredients of whose meaning we can, at best, be only little aware.

So, within the physical boundaries, which we can voluntarily limit, are faced the infinite extensions of a compound we cannot restrict. Morale yields with difficulty alike to the labels of definition and the restraints of analysis. But if we would pursue it further, it will be useful to have a summary or a symbol of some kind. For myself, I would present industrial morale, in the broadest sense of these respective terms, as health of body, hope of mind and happiness of soul.

Health: the Physical Phase of Morale

In beginning with the physical aspect of morale in industry, we do but repeat the ancient lesson learned by mankind in its long military experience. For some of our earliest examples and oldest traditions in morale can be absorbed by the arts of peace from the bloody trade of war. At the initial stage of recruiting, the emphasis of the army is upon the physical standards of the soldier, and thereafter, these run through the gamut of training, barrack life, forced marches and the grim arena of battle.

So it is with the pacific soldiery of industrial competition. Our concern with morale must begin with bodily health, and, further, must begin at the beginning,—with the process of selection for the industrial army. It is for that reason that we find such growing emphasis, in modern employment procedure, on the physical examination of applicants. No great productive enterprise can expect morale to reach its highest levels, whatever its other stimuli may be, by a careless mobilization of physical defectives and misfits. From a social view, this does not mean a draft of the physical best, and the ruthless rejection of every possible substandard body. Even with the army, it cannot be carried to this extreme. Industry, with its pressing demands and its limited reservoir of man-power, still less can follow such a path. But it does imply some standards of physical fitness adapted to the task at hand; some minimum of proscription on those with contagious disease; some provision for the correction and cure of minor defects to salvage otherwise good recruits; in general, a recognition of the basic role of physical well-being in morale.

Indeed, so far from being narrow in its point of view and so genuinely convinced of its far-reaching social and economic values, the more enlightened wing of modern industry realizes the child is father of the man. Hence, in many industrial communities, where the tendency is for the sons to follow in the steps of the fathers, we find corporations extending this health concern by visiting nurses, dental examinations, and clinics to serve mothers and children as well. But, with this brief aside, let us return to health in the industrial plant itself.

Having selected and received healthy recruits into the working army, it is doubly incumbent that standards of working conditions be such as not to tear down but to build up and preserve this precious asset for morale. It seems scarcely needful to dwell upon all those elements of sanitary work which are now so generally accepted and so increasingly applied. Of course, the standards themselves, their difficulties and their application, differ from industry to industry. The problem of fresh air is obviously different for the brakemen on their freight-trains and for the foundry-men over their dusty moulds; so also, the problem of light for machine operators on the night-shift and for the riveters twenty stories up in the sunshine of noon-day; and the problem of cleanliness for the bakery employees, and the coal-miners in their grime. Yet, regardless of weighting, the vital importance of the elements must be recognized. With the recognition should go every practicable precaution to insure a physical setting for work which, by contributing to health, maintains morale.

Amid the speed and pressure of modern industry, more often than otherwise the machine is king. Thus enters not merely sanitation but safety. The risk and strain of potential accidents are quite as hard upon morale, at times, as the broken bodies and mangled limbs are a tragedy to their victims and a drain upon the resources of both industry and society. This economic cost has been sufficient spur to wider and wider crusades for accident prevention. Yet I sometimes wonder if the influence upon the morale of the unharmed is fully valued. The gradual hardening process, by which men long exposed to danger acquire a certain contempt for it, is well known. But while they may become indifferent to risk itself, flesh and blood can scarcely be so unmoved by the consequences to its victims. The silent form buried under a fall of rock in the mine, the writhing sacrifice burned by molten metal, the bleeding comrade wrenched from the machine, are sights not soon or easily forgotten. The thought that any possible method of instruction, supervision or mechanical safeguard might have avoided this misery, is not conducive to morale. On the other hand, such a program of safety as educates the entire group to every means of avoidance and prevention, and supplies every necessary aid, mingles the natural horror and sympathy for the occasional unfortunate with the confidence that workmanlike skill and care will watch over their own.

Quite as persistent, and even more pervasive, as a foe of the morale of health, is fatigue. This brings us squarely to one of the great factors in labor policy, the length of the working day. Only in recent years has this received from management the calm, deliberate consideration that was its due. It must be confessed that the earliest and the largest gains in this respect were not due to the voluntary grants of the employer. They have been chiefly forced concessions, wrung by labor after stern battle or under the advantage of current economic pressure. All through the long story of that crusade, the same old prejudices and the well-worn formulæ did service against it. Whether one goes back into the musty records, when colonial workmen rebelled against a shift from sunrise to sunset, or comes down to the general acceptance of the eight-hour day, you can read almost the same arguments in almost the same forms. On the worker's side, they demanded more leisure in which to live as a natural human right; on the part of the employers, such presumption was viewed with alarm as indicating a waywardness which must inevitably end in the moral decay of idleness.

Happily, the era and the state of mind which involve, in any large measure, the enforcement of excessive hours of toil, is by way of passing. Few are left now to defend the twelve-hour day and the seven-day week. More are found to offer the shorter shift, the Saturday holiday in summer, and even to experiment with vacations for the rank and file. Quite aside from the obvious effect on the consumption of goods,—hence an economic objective of far-reaching import,—more leisure and less fatigue had become essential to physical morale. No enduring or efficient will to work could long endure in worn and weary ranks of labor. Even the military conquerors knew that there was a limit to forced marches and continuous campaigns. Likewise the captains of industry came naturally to prefer a fresh army to a tired one.

Thus far, under guise of discussing aids to the physical morale of health, I may have seemed in some measure to draw more attention to its enemies. After all, it may be said, sickness, accidents, unsanitary conditions and fatigue are not the rule, either for all men or under all circumstances. This is a fair point. The average man is not a defective, but relatively well, and in any case, has more days of health than of sickness. As for accidents of any serious kind, the word indicates an exception and not a rule. Granted such conditions, and reasonably good surroundings, the average toiler,—not under physical drains in his home or leisure hours,—should not be a victim of chronic fatigue poison, though he may be physically tired at the day's end. Looking, therefore, more directly at the problem of the majority, on what factor can we rely in largest measure for the promotion of health morale?

Subject, always, of course, to those elements in the compound which leave the individual in the mass, but make him distinct from it; subject especially, to the question of home burdens and home management,—I believe the greatest single fact in physical morale is the pay-envelope. Here we face another, and perhaps the basic issue in labor policy as it affects morale. That issue is the question of wages.

The caution is hardly needed, I trust, that by wages I do not mean solely the rates of pay, or wage scales. We are here interested in a principle and a policy, not in particular sums of dollars and cents. It is the total purchasing power of an annual livelihood which most concerns the wage-earner. Wage rates play an important part, but only a part, in the determination. Quite as vital for him is the volume of employment within the working year, and, if he be a piece-worker, the quality of management within his working day. It is the combination of these factors which chiefly determine his total earnings, and consequently this basic provision for health morale.

Let us return again to the army by way of illustration. Here the actual in currency, small though it appear beside the worker's wages, is essentially a surplus fund. Food, clothing, shelter, medical care and the other necessities have already been assured to the soldier. How different it is on occasion for the army of industry! To the soldiers of peace there is given no such assurance; and when for the moment the resources are relatively sufficient, lay-off or shut-down may come to interrupt their continuity. Yet without full provision for these elemental things of life,—and, of course for his dependents also,—it is delusion to talk of health in terms of morale.

As we have considered the physical as the foundation story in our structure of industrial morale, so we may view wages,—the essential purchasing fund for healthy needs,—as its cornerstone. The living wage is more than a humane ideal. It is a social and economic necessity. Without it, a truly fit or efficient army of industry is as remote as an army corps with an uncertain or sundered base of supply. From this view, the statement that wages are the first charge on industry is true. To make this claim effective means, however, not only assent to the policy of high earnings for labor, but commitment to every method of planning and efficiency which stabilizes our industrial operation. In other words, it implies a management creed in which the earnings of labor are construed in terms of annual income, not of the daily wage.

This, I believe, is increasingly the faith of American industry. To its spread we owe, at least in part, the continued activity of our production. For individual enterprises, subject to the sweep of competitive tides, the approach to a sound wage policy is frequently among dangerous breakers and rocks. For production as a whole, however, it is now a definite haven, coming into clearer view and appraised as well worth the struggle.

Hope: the Mental Phase of Morale

So we come to the building of our second story. The foundation we have tried to lay firm in the morale of physical health. And because its nature was physical, so also were its instruments chiefly physical. Now we enter the mental field, for which I offered the symbol of hope. Here it is morale as a state of mind with which we have to deal. Obviously its invitations are many and tempting. I shall choose only two.

My first may occasion some surprise as a spring of hope. It is discipline. Here, once more, we can profit by the hard lessons of the military. In the armies it is the first great commandment: "Thou shalt love discipline." In the ranks of industry we need yield it no such overweening place in order to weigh its true importance. But even there, it is hard to conceive a truly hopeful army that is at the same time an undisciplined one. "Good discipline strengthens the heart," wrote Horace, poet of the rugged old Romans.

During the late war, my particular duties gave me the opportunity to observe an unusual number of different army divisions. Each came, in the course of time, to take on a distinct individuality. It was a constant source of wonder to me that within the same great army, administered under identical policies, ruled by the most detailed regulations, and officered by our most standardized caste, there could develop such variableness. Some divisions were dominated throughout by a discipline which, at times, seemed almost a despotism. Others were almost as lax in bearing, in appearance, and in conduct as if their members were still in civilian ranks. Yet it was not the former who were sullen and dispirited. On the contrary, it was in the easy going camp that slovenliness of mind seemed to symbolize the laxness of control. The contrast made a lasting impression. Its truth for industry is, to my mind, unmistakable.

Sound discipline is not only a stimulus to mental morale, but laxness actually defeats it. For in dealing with large masses of men and by the intermediary of many supervisory ranks, discipline throughout the organism is an essential element of justice. By its action, reaction and interaction is created that morale of hopefulness which is diffused outward, towards one's fellows and towards one's job. In its absence is substituted a hit-or-miss procedure, hostile to every form of equity. The ugly weeds of favoritism, carelessness, privilege and graft scarcely thrive in a disciplined garden.

In the administration of great enterprises, the dispensing of penalty and reward is an inevitable function. Both are essential to growth, to efficiency, to progress, to the whole social scheme of things. If discipline, in the broad sense of justice and fair-dealing, does not underly such vital issues in industry as promotion and discharge, for example, it is idle to expect morale. The power that should be generated by the huge dynamos of working men is constantly subject to short circuits and broken connections. With powerful currents of discipline constantly charging the transmission lines from top to bottom of these great machines, the energy of hope is made effective and continuous.

It should be noted, in passing, that this fact of discipline is not limited in its results to mental morale. Obviously, from this point of view, discipline plays its part in some of the physical problems. Vigor, safety, fatigue, even earnings, are all subject to its influence in some degree. But whether large or little, whether in relation of men to their job, to their fellows or to their superiors, whether to physical welfare or mental outlook, discipline is vital to the hopes of industry.

I have not ventured to detail the means or the mechanisms, but rather to stress the fact. Clearly, the place of discipline, and its application, respond to no fixed formulæ. Its rôle on the railroads and in the mines must be something other than in the forests and in the banks. Of one thing we can be sure. Always and everywhere it will somehow enter into the hopes and fears of men. Discipline is a builder of hope when it begets loyalty without favors, obedience without servility, and exertion without the lash. Those who construe discipline merely as suppression are mistaken, whether they be critics standing aloof from industry or petty despots wielding it ignorantly within. Only in the soil of discipline can the fruits of the finest initiative be grown. For true discipline is release even more than it is restraint.

So I repeat: in seeking to create that morale of the mind which is hope, the first and great commandment is, "Thou shalt love discipline." And the second is like unto it: "Thou shalt win confidence in leadership." Indeed, these two are not merely akin, but the one includes the other. Discipline is born first of sound leadership: but, in addition, confidence in that leadership implies something beyond and above a disciplined control. It is not enough that there exist courage in the front line trenches; there must be capacity in G. H. Q. Moreover, in industry, even more than in the army, it is important not only that capacity exist but that the rank and file should be sufficiently aware of it. It is the knowledge of the fact, rather than the fact itself, on which the support to morale depends.

Now obviously, I do not wish to impute either value or advisability to any self-advertising crusade for management. As mere propaganda, it would certainly have no value. As an approach to the mass mind, it would ultimately be doomed to failure. Management is known by its works. By no one more coldly than by the rank and file of the industrial army is taken the measure of management in its daily capacity to lead. Not its promises or claims, but the demonstrated value of its policies and its planning, is the acid test. A fumbling, vacillating campaign is ruinous alike to the hopeful morale of production, sales or finance. Each corps, officers and men, sees its best efforts dissipated or nullified by improper coordination or by lack of support.

In this process, education reigns supreme as a method. The long, difficult and often tedious highway of training is the only road. Clear channels of communication from top to bottom must be opened and maintained. Particularly important is the attention to the "non-coms" of industry. Like the sergeants of the army, the lower supervisory group of foremen, sub-department heads and minor executives are the keys to leadership. Without them, most effort on the rank and file comes to naught. With their aid, informed, intelligent and determined, all things are possible.

Thus, as we observed discipline acting to diffuse hope outward toward fellow worker and the personal job, so the creation of confidence in leadership opens the avenues for hopes, like the sparks, to fly upward. Belief in the objective, faith in the strategy which advances the lines, confidence in the generalship to bring ultimate victory, are all raw materials for the morale of hope. For it is these alone that alleviate the forced marches in muddy going, lend significance to lonely sentries or dirty chores, lead to conviction that the struggle is worth the cost.

Happiness: the Spiritual Phase of Morale

And now we approach the topmost story, that morale of the soul which I have defined as happiness. Here we walk in a strange and undiscovered land; here no man is altogether certain of his own footing when his eyes are on his fellow men; here, even more than elsewhere in our search for the secrets of morale, we move with caution. That we happen now to be dealing with so dim and elusive a shape as happiness makes our going no easier.

It is well to remind ourselves that when those shrewd forefathers of 1776 wrote the Declaration of Independence, they did not enumerate our inalienable rights as "life, liberty, and happiness," but as "life, liberty, and the pursuit of happiness." The phrase is recognition of a great truth, and all that I shall say is in the light of that basic fact.

Moreover, we must reckon with another aspect of happiness. While health and hope are surely vital aids to happiness, indeed may doubtless be accurately defined as forms of it, happiness is more than these —a certain, positive thing which may often include yet invariably outreaches them. Men may be reasonably healthy of body and relatively hopeful of mind without feeling explicit happiness. By the same token, there have been happy souls whose triumph rested on a broken body or on hopeless circumstance. But we consider here the happiness of morale in massed industry, the zest that gives men the will to work as it gives armies the will to fight.

To my mind, security is its first condition. Men may face to the future with hope, but to be happy in the present struggle, they must be secure from rear attacks. Looking at industry to-day as it is,—not as it may be or as it ought to be,—that is the outstanding reason why it is not, and under present conditions cannot be, a happy place. It is the insecurity of life which breeds unhappiness for thousands, which is the chief foe of industrial morale. For every industry, and even more for many individual units, the fortunes of commerce are like the fortunes of war. Those engaged on the battlefields of modern competition know unemployment, disability and penniless old age to be masked batteries which deal an unending slaughter of the happiness of thousands. All too often, the attack falls upon them from the rear, unsuspected, while in the prime of health, hope and usefulness. Not morale but demoralization of our industrial armies is to be expected. These make the unhappy warrior.

Able bodied workmen seeking labor,—at times of crises by the millions,—and unable to find it; crippled toilers struck down at their tasks and tossed out on the scrap-heaps of humanity while they face helpless dependents; aged veterans dropped from the ranks, unable to fight the battles of industry, yet forced to fight the wolf from the door: these are not merely objects of pity, they are a shame to the ingenuity, the efficiency and the wealth of modern industry. No scheme of management which indefinitely neglects them, no quality of leadership which long fails to protect them, can count on industrial morale.

As with the army, the solution of security is by way of a rear-guard of reserves. Already we find evidence of at least the beginnings of this generalship in American industry. Compensation insurance, unemployment reserves, old-age pensions, and other like measures are each spreading their portion of happiness. Without some such provision, the hope in industry for really continuous and developing morale seems to me a vain one. In this instance, to leave the burden and the task subject to the vicissitudes of competitive trade seems not only a doubtful public policy but a dubious industrial one as well. The whole problem calls for the support of the entire community. Reliance solely on the generous impulses of the financially strong or on the gradual elimination of the weak competitor will prove a long, long trail to security, along whose broad highway will be scattered an infinite amount of human misery.

One other element in the morale of happiness, and I am done. Though in some aspects I view it as the simple essence of the whole thing, it is perhaps the phase on which I would offer the fewest assumptions. That is the part played by self-respect. Surely this is the Hamlet of our piece. Without self-respect, it is hard even to believe in morale; without it how much more difficult is a deliberate plan for its creation. Individual and pervasive, static and yet dynamic, self-respect is no less a mystery than morale itself.

In general, whatever of method, or means, or spirit tends to inculcate in the mass of men the faith that each is a man, makes for self-respect. The unpleasant, and sometimes intolerable, side of modern mass production—which so often reduces men to routine cogs in a vast machine, which accepts a human being, equipped with body, mind and soul, as a number on a payroll or a brass check on a nail,—is a difficult atmosphere for self-respect. Industry cannot now surrender the assets of large scale operation, but by taking thought it can perceptibly reduce its liabilities. To this end, to the slow accumulation of a spiritual surplus, as it were, management must seek self-respect wherever it may be found.

The more I observe the actual workings of our varied forms of industrial relations, the less inclined I am to pin my faith on any single one, or to exclude from the final composite any one of them. It has been my good fortune to travel a varied business landscape and not only to look out upon but to live among diversified industrial scenes. In manufactures, mining, transportation, merchandising and the so-called service industries, I have found wide peculiarities in technique but a great likeness in men. I have shared in the satisfaction of dealings with trade unions, with employee representation and with that simple, unorganized, yet often closer bond of master and man. At the same time and in the same way, I have observed cases where each of these forms sank to the lowest levels of failure, sometimes on one side, sometimes on both, a failure whence issued all manner of strife and bitterness.

Needless to add, in the successes under any method there were self-respect and a high measure of morale; the failures, regardless of form, were destructive of either. Not the form but the substance, not the letter but the spirit, maketh alive. Morale, and especially that essence which I have termed self-respect, are not born of mechanisms. They come straight from the honest purposes of men.

And so far as any one word may say it, this last is the whole story of morale.

I have doubtless raised more questions than I have answered. In being raised, they have perhaps been over-simplified, and in their turn have raised many more. To me, at least, this is no surprise, and for you it should not be a disappointment. For, at the very outset, I confessed that it was an explorer and not a guide who ventured to conduct you into All-Man's Land. If it has not proved a travel of discovery, it is chiefly because, at the journey's end as at its beginning, we still find the Sphinx across our way.

For morale, the mystery, is none other than the mystery of man himself.

STATISTICAL ANALYSIS IN FREIGHT CLAIM WORK [1]

JULIUS H. PARMELEE

Dr. Parmelee, Director of the Bureau of Railway Economics, Washington, D. C., gave this discussion before the thirty-seventh annual session of the Freight Claim Division, American Railway Association, Detroit, June 5, 1928. The talk was accompanied by numerous statistical charts and tables.

Mr. Chairman and Gentlemen of the Freight Claim Division: After this very gracious introduction from your Chairman I need hardly say that it is a privilege and pleasure to be with you this afternoon. In fact, I consider it a real honor to have an invitation from an Association like this and to know that you feel that perhaps I can help you to look into some of the collateral problems which you have before you and which I may be of some assistance in working out.

I have been attending some of your sessions here and have been interested to see in what a business-like manner you attack your problems and how intelligently you go at them. This morning, as I sat in the meeting and listened to your rather ardent discussions on Rules 154 and 164 and 174 and 2004 and all the rest of them, I felt that I was in the position of the colored soldier who during the late war was drafted, seized by the back of the neck and sent over to France. He was not at all keen on fighting, and when his white soldier friends discovered that fact of course they teased the life out of him. Among other things, they kept telling him that the ship would be attacked by a German submarine and probably sunk with all on board. Before they got through they had the poor darkey nearly white with terror. One day a soldier said to him: "Sam, suppose a German submarine should stop this ship and the Captain of the submarine should come on board, what would you say?" "Who, me?" said Sam. "Why, I would go up to that German Captain and I would fall on my knees before him and I would say: 'Captain, Captain, I'se no American soldier. I'se neutrality, I is.' " (Laughter.) I felt a good deal like that this morning. I felt glad I was "neutrality" and could sit on the side-lines and could not be called on to vote aye or no on any of the rather important questions you have before you.

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[1] By permission of the author.

I am particularly glad to discuss with you some of the phases of freight claim prevention because I believe that this question, bearing as it does on that phase of economic waste known as loss and damage freight, is a question of extreme importance to every railroad man, to every economist, and to every citizen. The subject that you have given me today is the part that statistical analysis can play in freight claim work, and it seems to me that that question is of considerable importance in the problem.

I need not emphasize the fact that no economic problem can be solved without preliminary diagnosis. In fact, there can hardly be an approach to a solution until a careful analysis has been carried out. Any physician who attempted to treat his patient without first studying the cause and extent of the trouble would not long survive the competition of his colleagues. Whatever remedy he might apply would be a matter of pure guesswork. In the same way, the business physician must diagnose every economic problem which confronts him before he can develop an adequate and effective remedy. In a very real sense, you are business physicians. You are working with a situation that is recognized as unsatisfactory and you are striving to improve it. It would be wasted effort for you or anyone else to apply a remedy without first measuring the extent of the difficulty and analyzing its several causes. So I say that statistical analysis must precede any attempt to reduce the economic waste growing out of loss and damage to freight. Not only must this analysis precede an attempted solution but it must be continued throughout all the stages of your campaign to reduce freight claim expenditures. Only so can you be fully informed at every step what the situation is, how it may be changing, in what direction the greatest improvement has taken place, and in what respects further effort may be required.

Considered broadly, any economic diagnosis must rest on a statistical foundation. To supply such a foundation is the primary function of freight claim statistics. Just what those statistics should be, how they should be collected and assembled, and what details should be covered is a matter of continuous study and I need not discuss that phase at great length here. The important thing is to assure ourselves that the statistics are available in comparable form from year to year, that an intelligent analysis has been developed, that it is continued from month to month, and that it receives appropriate study and appraisal at all times. Fortunately, your staff has developed a system of statistical reports which throw much light on the question of loss and damage to freight. My purpose today will be briefly to discuss this system, to show how it has been of assistance in your work during the past eight years, and to point out what indications it offers as to the line of most fruitful work for the future. I shall devote myself to a general picture and try not to burden you with detail.

In looking over the annual reports of your Division since 1920, I find that prior to the report on Loss and Damage Freight of the year 1922 practically no statistics had been developed to show progress in freight claim reduction work. These reports gave in detail the net claim payments each year but little effort seems to have been made to relate those payments to other years or to other factors in railway operation. In fact, at the meeting which covered the reports for 1921 President Aishton of the American Railway Association was forced to make verbal explanations to account for the apparent failure to attain the specific results you were seeking in that year. Shortly following 1920, however, we begin to see the effect of the campaign epitomized in your slogan of "Cut Loss and Damage in Half—It Can Be Done."

In the proceedings of the Freight Claim Division for 1921, for example, a table was included showing for the years 1914 to 1920 certain ratios and comparisons as between loss and damage expenditures, traffic and revenue. The progress from year to year, or in many cases the lack of progress, was also indicated. The same report for 1921 included for the first time the "claim dollar" chart, that is, the round graphic diagram that showed what proportion of the average dollar expended for claims was due to each of the different causes of loss. This table and chart was the beginning of a statistical and graphic development of the freight claim situation which has continued to the current report of the Freight Claim Division.

The report of the Committee on Freight Claim Prevention for 1927, for example, includes seventeen statistical tables showing what improvement has been attained and presenting certain ratios computed from a number of angles; in addition, no less than twenty charts indicating graphically where the "claim dollar" went to, both by commodity and cause, the proportion of each dollar of freight revenue that went for loss and damage, the ratios of the principal causes of loss to the totals, the ratios of principal commodities to all commodities, the amount of loss and damage per loaded car, the total number of claims presented, and the number per million ton-miles. Some of the charts are further split up into districts. So it would be difficult to find any phase of the situation not covered by either a statistical table or a chart, or both. These charts and tables serve instantly to direct attention to any recession from standards attained in prior years, whether the recession be in regard to some particular commodity or due to some specific cause, and indicate those points where extra effort should be made to correct the cause of failure. Some of the statistical information included in the report of your Committee on Freight Claim Prevention to which I have just drawn your attention has already appeared in the form of bulletins, circulars, and the like. But this Committee report is the one place where all of it is brought together, as it were under one roof, and laid down for scrutiny and for analysis.

Every one of these 37 charts and tables supplies a basis for such analysis. I ask you to consider with me some of the analytical possibilities inherent in them. Take the basic statistical table which classifies freight loss and damage by principal causes and commodities. The table lists 36 commodities and commodity classes, each of which is further subdivided as between carload and less-carload movement, making 72 subdivisions in all. For each of these subdivisions the table gives dollar totals of the loss and damage, which are then broken down into the 16 principal causes, such as unlocated loss and damage, rough handling, defective equipment, robbery, wreck, fire, error of employee, and so on. For a quick analysis of this table, perhaps the most important sections are those which distribute the total loss and damage payments of the year into its component parts on a percentage basis, both according to commodity and according to cause. These percentage distributions give the whole picture of the situation at a glance.

In 1927, for example, we find that the payments aggregated $38,713,059. Looking down the first column of the table, labeled "Percent," we can easily identify the principal commodity groups that contributed to this total. Fresh fruits and vegetables led the procession, accounting for 23.8 percent of all payments. Clearly, this at once marks out that group of commodities for special study. That the warning signal of this large percentage has been heeded is indicated by the tables and charts devoted to fruits and vegetables and by the existence of your Special Committee dealing with that commodity group. The next most important single commodity in the table is live stock, which was responsible for 6.6 percent of the total, followed by new furniture with 5.5 percent. No other single class accounted for as much as 5 percent, although there were three groups for which the percentages ran from 4 to 5 percent, three groups ran from 3 to 4 percent, five from 2 to 3 percent, and eleven from 1 to 2 percent. The remaining commodities contributed less than 1 percent each to the total.

In the same way, we may look across the percentage section that immediately follows the summary at the foot of the table. This distributes the total of $38,713,059 according to the principal causes of loss or damage. As stated, sixteen such cases are listed. The leading cause is rough handling of cars, which accounted for 26.6 percent, or more than a quarter, of the total payments. The next cause, in descending order of importance, is unlocated damage with 20.6 percent. These two causes alone accounted for nearly one-half the total. There is then a large gap, the third most important cause being delay with 9.1 percent, followed by defective equipment 7.6 percent, concealed damage 6.9 percent, wreck 6.7 percent, loss of entire package 5.5 percent. No other single cause is responsible for as much as 5 percent of the total. Here again these percentages at once draw attention to the outstanding causes of loss, and indicate where earnest effort toward improvement must be applied.

The so-called "claim dollar" charts indicate in graphic form how the loss and damage payments for the current year have been distributed, first according to commodity and, second, according to cause. These emphasize the percentage distribution figures already mentioned and so serve a double purpose.

Another basic table, which appears on the first page of the report, makes a comparison in considerable detail between the payments of the year just closed and the preceding year. The statistics for 1927 are thus compared with those for 1926 and give the trend up or down in the several commodity groups and general types of causes. These comparisons offer a basis for congratulation or give warning of a recession, as the case may be, and so point to the lines along which effort must be redoubled for the future. For example, we find in 1927 a general increase of 1.4 percent over 1926. But the table shows an increase of more than 10 percent in concealed damage, 7½ percent in rough handling, and more than 5 percent in unlocated damage and freezing or heater failure. The general charts are principally comparative in nature; that is, they present a story from various angles and for a period of years, so that the trend may easily be seen. Some go back to 1894, some to 1920, and some to 1921, but, whatever the period covered, the upward or downward trend is clearly portrayed.

Turn, for example, to the chart showing what proportion of each dollar of freight revenue is paid out for loss and damage to freight. In 1894 this proportion was slightly over 1 cent per dollar of freight revenue. During the succeeding years it fell as low as 6 mills per dollar, then in 1919 rose to its peak of nearly 3 cents per dollar. An almost steady decline brought it down to 7½ mills in 1926, the lowest point since the beginning of the war period, from which minimum it showed a slight but unfortunate rise to 8 mills per dollar in 1927. As this chart measures the burden of freight claim payments on rail revenue, it supplies a highly significant picture of the relative situation from year to year.

In the same way, comparisons are made with the number of tons, the ton mileage, the number of claims filed, and other factors, all of which throw light on the problem from their respective angles.

An interesting feature of the freight claim situation as a whole that has not appeared in these charts and tables is the extent to which the changing value of the dollar has contributed to the reduction in loss and damage payments since 1920. In gross dollars, the reduction between 1920 and 1927 was 67.7 percent, or about two-thirds. When the decline in wholesale prices during that same period is taken into account, this reduction becomes 50.2 percent, or about one-half. That is, even had prices remained stationary and had the purchasing power of the dollar been the same in 1927 as in 1920, freight claim reduction would still have exceeded one-half—no mean achievement, especially when we recall that the revenue ton-miles actually increased 5 percent during the same period of seven years. Stating the matter differently, it appears that less than one-fourth of the reduction is due to changes in price levels, while the remaining three-fourths can properly be credited to the conscious and intelligent work of the railways in the field of claim reduction.

Some of the charts show what percentage ratios the various items, classified either according to commodity or to cause, bear to the total. While of great interest in themselves, they could perhaps be advantageously supplemented by others showing the actual amounts paid for loss or damage by years. After all, the gross amounts might be growing steadily while the ratios to all were showing improvement; or the reverse might be true. Again, the totals might remain stationary while the ratios were moving up or down. In other words, while the relative situation is of great importance in analyzing this whole question, no less important is it that a watchful eye be kept on the actual situation. Otherwise, changing conditions in traffic which seemed to show relative improvement might, for that reason, lead a cursory investigator into undue optimism as to the real achievement of the railways in the field of claim prevention.

Another suggestion is that a basic table be included to show how the different classes of loss and damage payments have been reduced since, say, 1920. The present tables show only the change during one year, comparing the figures each year with the preceding year only.

Many other statistical factors enter the problem as well. The amount of freight traffic is one, measured either in carloadings or car miles, or tons or ton miles. I have already referred briefly to this factor in my comparison of 1927 with 1920. The value of the goods handled is another, this factor being one that involves the question of relative price levels. This factor has also been touched on briefly in a previous paragraph. Still other factors are the weather, the prevalence of disasters such as serious floods, and the existence of so-called "crime waves" which affect the robbery or theft losses. In brief, every factor in this highly complex problem must be analyzed and fitted into the picture as a whole, or a true and complete statistical analysis cannot be secured.

You are to be congratulated on the progress of the past eight years; you are also to be congratulated on the development of a series of tables and charts that supply many diagnostic symptoms for the purpose of study and analysis. When the business doctors among you have added a few more touches to their pictures, their graphs, and their curves, you will properly feel that that phase of your work need trouble you no longer. The principal question then before you will be the adequate remedy. You will know where it should be applied; the problem will be how to apply it. In meeting that problem, you have the best wishes of all of us who hope to see the freight claim as a form of economic waste reduced to its absolutely irreducible minimum.

Mr. Chairman, in closing I shall take the liberty of telling another colored story. The pastor of a negro church not far from Washington fell out with some of his members and they decided to get rid of him. So they sent a committee to see him and inform him that his services would no longer be needed. Brother Jackson was much astonished when this committee waited upon him, and he said: "Brethren, don't I argufy?" Yes, they said, he argufied. "Well, then, brethren," he said, "don't I sputify?" Yes, they said after thinking it over, there was no question but that he sputified. "Well, then, brethren, what seems to be the trouble?" he asked. The committee pondered on that for a while and finally one of them spoke up and said: "Brother Jackson, you does not give us the herein of the how." (Laughter.)

So, Mr. Chairman and gentlemen, in thanking you for your attention to this address, I feel sure that this assemblage of freight claim men, although you undoubtedly will do some "argufying" and a good deal of "sputifying," will in some way arrive finally at a knowledge of the "herein of the how" of freight claim prevention.

RADIO IN THE WORLD WAR AND THE ORGANIZATION OF AN AMERICAN-OWNED TRANSOCEANIC RADIO SERVICE[1]

J. G. HARBORD

General Harbord, President of the Radio Corporation of America, delivered this address before the students of the Graduate School of Business Administration, Harvard University, Apr. 23, 1928.

People today are prone to consider radio primarily as a means of entertainment. To the average person, it is a modern edition of Aladdin's Lamp whose genii, summoned by the mere twist of a dial, will instantly supply him with whatever form of diversion his mood may dictate. Sitting within the four walls of his home, he has heard the music of the world's finest composers; he has listened to the living, vibrant voices of the greatest artists of his own time; he has followed, with breathless interest, the epoch-making New York to Paris flight of the intrepid Lindbergh; in his mind's eye, he has trotted around the bases with "Babe" Ruth for a home-run, twisted and turned with "Red" Grange as he sped to a touchdown, and sat on the back of Zev as he and Sande thundered through that last sixteenth.

Rarely, indeed, does he turn to his radio as a source of information. It is problematical whether he has ever considered the possibility that radio has features other than those of mere entertainment. Yet radio *is* playing, day by day, an increasingly large part in the affairs of this modern world. Commerce functions more quickly and more effectively because radio has annihilated time and distance; navigation is safer because of the radio direction finder and the radio beacon; and the increased efficiency of the Army and Navy, both in peace and war, lends eloquent testimony to the value of this new science. It is in these fields that radio has amply justified its existence and its present high place among the essential industries of this country and the world.

Trade between peoples began in the earliest days of recorded history, when adventurous pioneers fared forth, by caravan and galley, to establish contact with their unknown fellows in distant lands. War is the oldest collective form of human activity, and the spirit of conquest, rather than that of fair exchange and good will, too often dominated those early adventurers, primarily actuated as they were by a desire for plunder and slaves. But they paved the way for international contacts and subsequent trade; indeed, seven centuries before the dawn of the Christian era, the Phœnicians had already attained an enviable reputation as the foremost commercial people of the world of their time. Keeping secret their trade routes and intimate knowledge of winds and ocean currents, those intrepid traders from ancient Tyre became the first exporters and importers in history.

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[1] By permission of the author.

International trade has developed through the ages as civilization, in its forward march, has devised improved means of transportation. The Phœnician galley gave way to the sailing ship, many centuries later came the first steamer; and today, the seven seas are dotted with ocean greyhounds, freighters, and motor ships, while the airplane and airship loom up as possibilities of a distant future.

Speedy communication dates back to ancient Persia, where relays of men and horses inaugurated the first postal service. In the account of his trips to the Orient, Marco Polo tells of an elaborate system of rapid communication in China, established centuries ago by the Great Khan. A postal service, time-honored institution that it is, still remains the world's chief reliance in communication.

Speed, after reliability, is the most important factor in communication. A single day looms large in the handling of international trade. In the absence of physical contact between buyer and seller, man has long sought an instantaneous method of communication. With the growing intensity of his desire to reduce months, weeks, days, and even hours to minutes and seconds, he turned to electricity as a possible solution.

The telegraph was among the first fruits of this idea. In 1820, following the discovery of Oersted in connection with the magnetic field surrounding a conductor of electricity, Ampere suggested its technique. Many pioneers engaged in telegraphic experimentation, but it was not until 1837 that an American, Samuel F. B. Morse, evolved a really practical instrument, and thus laid the foundation for rapid communication by means of electricity.

Expanding networks of wire, binding separated cities and communities into compact national groups, marked the phenomenal growth of the telegraph. Coming to the water's edge, it encountered its first hazard. Yet the obvious necessity of laying wires beneath the surface of the water merely gave added impetus to its development, and in a short space of time, the submarine telegraph, or ocean cable, brought telegraphy into the realm of international trade.

In 1845, a cable, the progenitor of the vast British system of today, was laid under the English Channel, linking Britain and France. Six years later came a permanent Dover-Calais cable. The year 1856 witnessed the first transatlantic project, sponsored by the American, Cyrus W. Field, but involving British capital and control. The Atlantic Telegraph Company was organized with a capital of £350,000, its guiding technical genius being Lord Kelvin who evolved, first, the reflecting galvanometer, and later, the syphon recorder, both of which bore his name.

The first transatlantic cable, attempted in 1857, broke in the course of laying. The following year, a successful attempt was made, but the cable broke after two and a half months of service, during which time 732 messages were handled over it. A third trial in 1865 was likewise unsuccessful, but in 1866 a lasting success was achieved.

Great Britain, essentially a nation depending upon international trade for its very existence, was quick to sponsor the submarine cable. A flourishing cable industry arose in England, due in large part to the fact that gutta percha, the only adequate insulator for submarine cables, was and is virtually a British monopoly. British colonies and other countries throughout the world were linked with England by means of a vast and intricate network of cables having London as its nerve center. By 1907, more than 38,000 nautical miles of submarine cable had been laid, mostly of British ownership and control. With the outbreak of the world war in 1914, practically all cable lines led to London, so that the British Government found itself in a position to censor and control the interchange of intelligence between most civilized peoples. The strategic value of this was incalculable. Thus, in a trifle more than fifty years, England had acquired control of international communication.

Other nations, though forced to acknowledge British priority in the submarine cable field, were keenly interested in establishing contact with their colonies and among themselves. Radio was an inviting possibility as a substitute. At the beginning of the century, Marconi had demonstrated the feasibility of flashing signals across the Atlantic. By 1908, a transatlantic radio service between Ireland and Nova Scotia was in operation. Inspired by the success of these experiments, several nations planned world-wide communication networks of radio.

In 1913, Germany projected a pretentious network with Nauen, a suburb of Berlin, as a center. The plan featured military as well as commercial considerations, and it was obviously in keeping with the predominant Junker philosophy of the period. Spans were contemplated much beyond anything thus far attempted in long-distance radio communication.

France, too, had its world-wide radio plan, colored by colonial and military ambitions rather than truly commercial considerations. Both this and the German system paid particular attention to South America.

Great Britain, not content to rest on its laurels in the matter of submarine cable supremacy, had its own world-wide radio project in the "All-Red Chain" which was well under way in 1913, when the British Marconi Company received governmental permission to carry it through. The official style of this company is Marconi's Wireless Telegraph Company, Ltd., but the whole world knows it familiarly as "The British Marconi." Its plan provided for two routes from England to Australia, and, like its French and German brothers, had a decidedly nationalistic flavor. London was the heart of this "All-Red Chain," designed to supplement the British cable system and to strengthen the British grip on world communications.

A striking feature of these pre-war networks was the enormous distance between stations, quite incongruous with the development of radio up to that time. Many stations were designed to divide time among various terminal points, a condition hardly in keeping with good commercial practice. Furthermore, and most important, the projects were mainly theoretical, and quite unrealizable in actual practice.

The key to reliable and economic radio communication was still missing. The spark transmitter then in use, although developing enormous energy, was unable to span vast distances with that degree of certainty needed not only for continuous service irrespective of atmospheric disturbances, but for the high-speed operation indispensable to the increasing demands of transoceanic communication. Cables remained the mainstay of overseas telegraphy.

Then came 1914. On June 28th of that year an assassin's bullet ignited the train of powder which plunged the civilized world into war. The network projects of the various nations were temporarily abandoned, but the English control of cables gave Great Britain and its Allies invaluable aid in the clearing of their own communications, as well as in the censorship and control of those of other nations.

It was about this time that America took the lead in industrial research. Prior to the war, new developments in this country had been largely the result of either pure invention or chance. Systematic and purposeful research was practically unknown. But now the laboratory became one of the most important elements of our industrial life. Engineers calmly faced, studied, and solved their problems with a view to meeting the emergencies created by the war.

Radio problems, too, were included in this effort. Radio engineers had long realized the necessity of a suitable high-frequency alternator, or generator, capable of producing alternating current of the order of 50,000 to 100,000 cycles, in contrast with the 60-cycle current required for our electric light service. Constant, uniform, high-frequency energy, delivered by a reliable alternator, was needed for the ideal radio transmitter.

Dr. Ernest F. W. Alexanderson was the man destined to solve this problem. Working in the General Electric Research Laboratories, with unstinted expenditures of time, effort, and money, he finally evolved the high-frequency alternator which today bears his name. This was a noteworthy achievement for radio engineering in general, for, as stated by Dr. Alexanderson himself, the alternator is not an invention excepting as it involves some patented details.

The development of the Alexanderson alternator was hastened by the war. The great Marconi himself came to Schenectady in 1915, to witness the test of a 50-kilowatt, 50,000-cycle alternator, and shortly after the General Electric Company was in receipt of attractive offers from the British Marconi Company. In 1917, the first alternator was installed in the New Brunswick, New Jersey, station where it aided in the development of the multiple tuned antenna, the magnetic amplifier, and the receiving system known as the Beverage antenna. As a result of his prior experiments with the alternator, Dr. Alexanderson foresaw narrow, crowded wave channels. This led him to evolve the system of radio frequency tuning which now dominates radio reception.

In 1918, the 50-kilowatt alternator was replaced by one of 200 kilowatts. This served not only for President Wilson's peace preliminaries with Germany, which, preceded by four years of war, led to the signing of the Armistice, but also for radio telephone communication with the President's ship en route to France in the spring of 1919. The reliability of the Alexanderson alternator in the New Brunswick station attracted wide attention, particularly from the British Marconi Company, which was now preparing to resume work on the Imperial British radio network or "All-Red Chain." This company, with its American and associated branches, was then, of all radio organizations in the world, best fitted to make use of the Alexanderson alternator which represented a vast investment on the part of the General Electric Company.

To return to the outbreak of the war, it will be recalled that the United States found itself an isolated nation. The inadequacy of our communication facilities became increasingly manifest as the war monopolized, to an ever-increasing extent, the message capacity of the British cable system.

When, however, we declared war upon Germany in 1917, the need of an All-American transatlantic communication system became acute. General Pershing stressed the need of direct radio channels, and a large station was erected by American engineers near Bordeaux. Facilities were provided for handling the enormous flow of official matter between Washington and our forces on land and sea. Few of our countrymen have any adequate conception of what radio means to our Army and Navy, and it is appropriate to consider, at this point, the important part they have played in its development.

Before the United States entered the war, the Navy's high-power transcontinental, transpacific chain was in operation. This network consisted of stations at Arlington, Virginia; San Diego, California; Darien, Canal Zone; Pearl Harbor, Hawaii; Guam, in the Mariana Islands; and Cavite in the Philippines. In addition, it controlled numerous low-power stations at various points along our coasts, and in our outlying possessions. Add to this the fact that its fighting ships were fully equipped with the very latest type of radio apparatus, and it is apparent that the Navy was well prepared for war in a radio sense. The purpose of the high-power chain was to provide communication between our Navy Department and our forces afloat, entirely independent of the foreign-owned and controlled ocean cables.

The day after war was declared, a Presidential Proclamation directed the Navy to take over all radio stations in the United States and its possessions with the exception of those already under control of the Army. Accordingly, four Pacific high-power stations in active operation by the American Marconi Company were added to its chain, but these proved to be of little military value and were discontinued, as the theater of war was confined to the Atlantic area.

On the eastern seaboard, however, the Navy assumed control of the same company's high-power transatlantic station at New Brunswick, which, through its communication with the German station at Nauen, played the important part during the closing months of the war, as already stated. Navy officials were so well pleased with the work of the

Alexanderson 50-kilowatt alternator that they quickly instructed the General Electric Company to build one of 200 kilowatts. When this was installed, the New Brunswick station became the most effective in the world and operated almost continuously during the war. Inter-allied communications were effectively handled, and radio contact was established with American and Allied vessels on the high seas, throughout this period of national emergency.

The Navy also took over the German-controlled station at Sayville, Long Island, and the station at Tuckerton, New Jersey, under construction by a German firm. Both of these stations had been placed in the hands of Navy radio personnel when the United States was a neutral. The Sayville station had been, from 1914 to 1916, Germany's principal means of communication with the outside world, for the Allies had almost at once cut all cables radiating from the Central Powers.

An agreement was early reached between the Army and Navy regarding civilian engineering personnel. Radio personnel was assigned to the Navy, with the result that that branch of the service had the assistance of the best radio engineering talent available. The Navy was greatly indebted to American radio companies which furnished it with large quantities of necessary apparatus.

Thus at the outbreak of hostilities, the Navy was prepared to handle the communication requirements of its forces. It was not prepared, however, to assume a large volume of traffic between the United States and its Allies, which had previously been handled by the transatlantic cables. Invaluable aid was rendered the Navy Department in this direction by the trained personnel from the ranks of the American Marconi and the Federal Telegraph companies.

With the dispatch of large numbers of our troops to France, the cables quickly became loaded to full capacity, and transatlantic radio communication presented an acute problem. If the cables were cut it was apparent that radio would be our only dependence in the matter of telegraphic communication with our Allies and our own Expeditionary Force.

Fully to appreciate the seriousness of the situation, one has only to compare the conditions existing today with those of ten years ago. Transoceanic radio was, at that time, in its infancy. Receiving equipment was totally lacking in the refinements it now possesses; static was then relatively much more of an obstacle; and short-wave radio was absolutely unknown. But even if the radio circuits of the present day, with all the improvements which the intervening years have brought, were suddenly called upon to handle the normal flow of transatlantic cable traffic due to some sudden disruption of the cable system, they would be hard pressed for the moment.

Even with the improved New Brunswick and Sayville stations available for transmitting to Europe, the Navy was still faced with the problem of the effective reception of an equal volume of return traffic. Accordingly, extensive experiments were conducted at Bar Harbor, Maine, and Belmar, N. J. Due to some peculiar characteristics of its location, the station at Bar Harbor proved to be the most effective transatlantic receiving station in the United States. An extensive receiving equipment was installed, together with a complement of 150 radio operators.

As a further precaution, the Navy, in conjunction with the Army and the French Government, undertook the construction of the Lafayette 1000-kilowatt arc type radio station near Bordeaux. To supplement this, it also established a 500-kilowatt arc type transmitting station at Annapolis. In addition, fourteen 2-kilowatt shore stations were established and equipped in Ireland and France for the purpose of cooperating with aircraft which were combating the submarine menace in European waters.

After the formation of the United States Shipping Board, the Navy during the course of the war supplied and maintained radio equipment on approximately 1500 vessels, including a number of foreign ships which were seized in our ports. With the signing of the Armistice, the Navy, having assisted in the establishment of a radio administrative division, turned that branch of the work back to the Shipping Board. It still continues, however, to supply that body with such radio equipment as it needs.

The exigencies of the war gave the maritime world the first practical radio compass or direction finder. This device had been experimented with by various navies since 1912, but it remained for the desperate situation created by the submarine menace to bring about its development into a really workable instrument.

Utilizing the radio compass, the British gained foreknowledge of the fact that the German High Seas Fleet had left harbor prior to the Battle of Jutland, because the enemy persisted in an unrestricted use of radio transmitters. Later in the war, United States transports were routed from Brest in accordance with information concerning submarines obtained through the radio compass.

Upon our entrance into the war, American ships detailed to European waters were equipped with radio compasses of American design.

Likewise, our Navy developed this device for aircraft, and supplied nearly all our destroyers with it.

Today the radio compass is being further developed, and personnel trained for possible future emergencies by an extensive peace-time service free to ships of all nations. The popularity of this service is attested to by the fact that it is increasing at the rate of approximately 25 per cent annually.

Another major problem confronting the Navy during our participation in the war was the development of a suitable radio apparatus for use on aircraft. Equipment of very light weight had to be produced. Engine ignition interference, which prevented the reception of all but the very loudest of signals, had to be overcome. Nevertheless, up to the signing of the Armistice, seventy-five planes had been fitted with spark type transmitters and vacuum tube receivers.

In concluding our discussion of naval radio we can do no less than acknowledge with appreciation the part our Navy has played in the development of an All-American radio service.

At the outbreak of the war, German-owned high-power radio stations were in operation within the United States, and there was no assurance that other nations would not follow suit. America was by no means self-sustaining in radio in 1914, and was employing considerable radio equipment imported from other countries, particularly Germany.

The American Marconi Company was merely a branch of the great parent British organization. The American Marconi entered into negotiations with the Federal Telegraph Company of California with the idea of purchasing that company's radio system, and the sole commercial rights to its patents, with the exception of those already assigned to the Pan-American Telegraph and Telephone Company, itself involved with the Marconi interests.

The Federal Telegraph apprised the Navy of this move, and offered to sell to it on the same terms. The Navy immediately accepted and purchased the Federal Stations and patent rights. Subsequently, it added the American Marconi's system of marine coastal stations with the exception of transatlantic and transpacific high-power shore chains.

Meanwhile, German stations had been seized by the Navy, while the Marconi Company had acquired control of the Tuckerton unit. Thus the United States found itself entirely free of foreign-owned and controlled radio stations and services within its borders, except for the Marconi high-power chain.

Let us now pass on to a consideration of radio's relation to the Army.

The paramount importance of communication in military operations has led to the utilization and development of all possible means by which intelligence may be promptly and accurately transmitted from one headquarters to another. The battlefield of antiquity was well within the visual scope of a commander and his aides. Today, in marked contrast, the size of the forces engaged, and the fact that several armies may be waging battles at different points, have rendered this impossible. Various means of signal communication must be employed, and although no single system is universally applicable, each has its valuable features.

Telephone communication, for instance, permits personal contact by voice and instantaneous understanding; the telegraph gives a written record of the message; the personal messenger seeks out an addressee whose location was perhaps unknown to the writer of the communication; pyrotechnic signals convey intelligence over a wide area; and the pigeon, though he does not fly at night, wings his way over impassable territory heedless of noise and shell fire.

Radio, the latest addition to this family of signalling agencies, combines many of the valuable characteristics of older methods, and has at least one further advantage which is distinctly peculiar to itself. It has furnished the only really practical means of communication between points which cannot be linked by wires.

A valuable contribution of radio to the Army has been in providing inter-aircraft communication, and contact between aircraft and ground. The airplane observer may be in touch with a vast area, but the full and complete utilization of the invaluable knowledge which may be his depends upon its instantaneous transmission to his commander. If the increased efficiency of the airplane enhances its military value, radio will play a correspondingly larger part in supplying that indispensable coordination between air and ground.

Next in importance is the service which it has rendered the cavalry. The chief value of this branch of the service lies in its mobility, and a great problem confronting signal officers has always been the maintenance of communication between the widely separated units of a cavalry command. Radio has furnished a most happy solution.

In its aerial and cavalry applications, radio is indispensable in its own right. In other cases, however, it has been found a valuable alternate or substitute for the telephone or telegraph. Communication with front-line infantry organizations is often impossible in the face of heavy shell-fire. When other means fail, it is the lightweight radio set that ultimately establishes contact with the supporting artillery or superior command.

The Army has ever been alert to investigate the military value of any new invention. In his annual report for the fiscal year 1897–1898, General A. W. Greely, Chief Signal Officer of the Army, said: "Colonel James Allen has devoted much attention to the system of wireless telegraphy with a view to adopting a suitable system whenever the progress of the invention and the conditions of military service shall warrant it."

The following year, the Signal Corps established wireless communication between Fire Island and the Fire Island Lightship, and in April of 1900, a daily schedule was inaugurated between two radio stations in New York Harbor. As part of its Alaskan telegraph system, the Signal Corps had installed a submarine cable between Nome and St. Michael. The cable, however, was annually carried away by the spring break-up of the ice, and in 1901, it was decided to substitute wireless. Two years later, the system was in successful operation, and it became one of the first long-distance radio systems regularly handling commercial telegraph business.

The design of a portable radio set for field use proved a formidable task. It was not until 1906 that the Signal Corps built its first successful apparatus. It was an induction coil set operated by storage batteries. About the same time, a set permanently mounted in a wagon, was constructed. By 1908, both these sets had been fully tested by the Army under actual campaign conditions in Cuba and the Philippines. As a result, the induction coil was abandoned, and quenched-gap spark sets, operated by 500-cycle alternators, were adopted in 1911.

Up to the outbreak of the European War, most of the low-power fixed station sets were of the quenched-gap type. The higher-powered units were of the arc type, with a sprinkling of high-frequency alternators. Receivers were simple tuned circuits and crystal detectors, and the possibilities of the three-element vacuum tube had yet to be realized. Radio was expected to be used in work between the larger headquarters at times when the Army was moving too rapidly for the establishment of wire lines. Communication with detached bodies of troops with cavalry was also projected. But no one had yet foreseen the elaborate systems of contact, including radio, which were to be employed in the World War.

At the beginning of the War, the radio equipment of most of the combatants was much the same as our own. It soon became obvious, however, that radio had to undergo a great change if it was to adapt itself to the conditions of modern trench warfare in which short-distance service and light-weight equipment were at a premium.

War has always resulted in the intensive development of military weapons. The belligerent powers, quick to appreciate the value of radio, expended vast sums for scientific research and development. More sensitive receivers, employing vacuum tube detectors and amplifiers, were evolved, and the entire scheme of radio use was radically changed. The pre-war plan of two sets for all purposes was replaced by a new plan involving many types, each designed for a special service.

When we entered the war, we were equipped as we were in 1914, whereas our Allies had radio apparatus representing three years of intensive war-time development. Accordingly, we were forced to adopt the equipment of the French Army, but a research program was laid out with view to our future needs. A laboratory and field-test section was established by the A.E.F. in France. In this country, a research bureau was created at Camp Vail, New Jersey, and this was supplemented by work done at the Signal Corps Laboratory and the Bureau of Standards in Washington. Many improvements were made in the French sets. Indeed, the Armistice found us nearing the completion of a program for the development of radio apparatus designed to meet the special requirements of our Army.

At the close of hostilities, development work was stopped, a survey of the requirements of our Army was made, and a plan formulated for the future military employment of radio. It was decided to continue the development of portable field equipment in the Army's own laboratories.

In accordance with this policy, the Signal Corps retained the laboratory at Camp Vail, and established another at Wright Field, Dayton, Ohio, where research work, in connection with aircraft radio apparatus, is carried on. The Army, thanks to this feature, is now equipped with no less than thirteen separate and distinct types of portable field radio apparatus for use in connection with aircraft. It might seem that there is a superfluity of equipment, but such is not the case. The fact is that it is *not* sufficient, and will shortly be increased.

The yearly advance in radio art has compelled the Signal Corps to revise its program from time to time in order to keep abreast of the development and to lead the way in some of its phases. A noteworthy example of the latter angle is furnished by the Signal Corps' work with the radio beacon which was successfully employed in the recent Hawaiian flights. The last few years have witnessed an intensive development in short-wave communication. The Signal Corps is at present engaged in experimentation with a view to changing practically all portable field equipment to short-wave sets. It may be of interest to note that it was one of the pioneers in this field, and the SCR-77 loop radio set, operating on a wave-length band of 68 to 73 meters, was first developed during the World War and has been in use ever since.

Broadcast information was known during the war, although not in the form which is now so popular. Time was broadcast for the Allies from the Eiffel Tower station, and valuable meteorological data was sent out at frequent intervals by various field transmitters. An attempt at propaganda by radio broadcast was made by the Germans in the waning months of the war. Station POZ at Nauen sent out daily bulletins in German, French, and English, giving a highly colored report of Teutonic successes and minimizing their losses. This information, however, was received only by a mere handful of radio operators and was considered a matter of passing interest with little news value.

The War did much to develop a world consciousness in the American people. American business, aware of the end of our commercial isolation and eager to share in the world's markets, began to seek export trade in earnest. The United States was no longer willing to accept a "party-line," so to speak, in the scheme of world communications. The newly created nations of Europe likewise sought to establish direct contact with us in fostering good will and trade, and the way was paved for an all-American communication service.

The close of the war found the General Electric Company ready to supply anyone with the Alexanderson alternator as a means of reliable and economic transoceanic radio communication. The British Marconi Company presented the only existing market, and it was on the point of placing orders to the extent of $5,000,000 with the General Electric if granted exclusive rights to the use of such equipment.

President Wilson, in Paris at the time, sent Admiral Bullard, Director of Naval Communication, and Captain Hooper, to the General Electric with a request that it decline to sell to the British Marconi Company or issue rights to foreigners to use its inventions. The President sensed an obvious intent on the part of the British to dominate international communication and transportation. Inasmuch as they were already predominant in the cable field, the control of radio facilities, if achieved, would give them a veritable monoply in the transmission of intelligence throughout the world.

On April 5, 1919, a small group of men, including Owen D. Young, now Chairman of the Board of the Radio Corporation of America, received Admiral Bullard in the New York offices of the General Electric. In the presence of this small gathering, this government representative disclosed the irreparable injury to American interests that would be sure to follow if the Alexanderson alternator were sold to any foreign government or private company. He pointed out that, although our citizens had never played a prominent part in cable communications, here was an opportunity to retain in American hands the complete control of radio communication, not only in the United States, but in Central and South America as well. In this connection, he outlined a policy of wireless doctrine not unlike that of our greater Monroe Doctrine.

The General Electric was, and still is, preeminently a manufacturing concern, producing electrical equipment which it sells throughout the world. The Alexanderson alternator represented to it a substantial investment. And now the opportunity had come to manufacture and sell the device to the only logical customer at a fair profit. Yet so ably did Admiral Bullard plead his case that negotiations with the British Marconi Company were canceled. This, although preventing the British from acquiring the alternator, did not provide America with a radio communicational organization, nor supply a market for the General Electric's equipment on whose development vast sums had been spent.

Accordingly, Owen D. Young, with the sympathetic cooperation of our government, took the steps which led to the organization of the Radio Corporation of America. The American Telephone and Telegraph Company, the Western Electric Company, the United Fruit Company, and later the Westinghouse Electric and Manufacturing Company joined with the General Electric Company in the work of welding together into one great central organization the principal radio inventions and radio research facilities of the American people. Financially and technically, the new company was in position to compete with any other like organization in the world. It acquired the property and rights of the American Marconi Company and made traffic contracts with its parent organization, supplementing these with agreements with German and French companies. Later it worked with all these in developing radio in South America.

It is due that I should say a few words concerning Rear Admiral W. H. G. Bullard as a man. His death in 1927 was a great loss, not only to our Navy, from which he had retired, but to the entire nation. Americans have been slow to realize the value of international communication, and our recent awakening in this respect makes his loss the more keenly felt. Admiral Bullard was one of the few men of broad vision in the United States who was familiar with the communication service. From 1912 to 1916, he was Superintendent of the U. S. Naval Radio Service, and Director of Naval Communications from 1919 to 1921. While Director of Naval Communications, he played a great part in the formation of the Radio Corporation of America. In March, 1927, President Coolidge appointed Admiral Bullard to the Chairmanship of the Federal Radio Commission for a six-year term. While engaged in the duties of that office, he was also taking part in the work of the International Radio Conference as a delegate.

Radio had a true friend in Admiral Bullard. Never has it had a more ardent supporter and worker. In him, the American people found a true champion of their rights in world affairs. The place he has left vacant will be a difficult one to fill.

The Radio Corporation of America came into being in response to the urgent call of an enlightened public opinion. Its mission was to secure for America that unquestioned supremacy in radio communication to which the contributions of inventive genius, industrial organization and capital justly entitled it. In the nine years the Radio Corporation has been in existence, there has taken place a development fully comparable to that of the British cable system over a period of six decades.

Today, from New York City, the RCA world-wide wireless service offers direct communication with England, France, Germany, Italy, Holland, Belgium, Sweden, Norway, Poland, Turkey, Argentine, Brazil, Colombia, Venezuela, Porto Rico, Dutch Guiana and Portugal. San Francisco is the center of a network which reaches out to China, Japan, the Philippines, Dutch East Indies, and French Indo-China. Additional circuits are planned in the future to countries as near as Canada and Cuba, and as distant as Spain, Czecho-Slovakia, Chile and Liberia.

The present circuits, unlike those of pre-war days, are based primarily on commercial considerations. They are established between stations of sufficient power to span the intervening distance under all conditions. Although not in the form of physical conductors between transmitting and receiving points, they are no less firmly fixed from the standpoint of traffic flow. Operating speed has steadily increased. There was a time when 20 words a minute was considered the standard of efficiency. Today, on our latest short-wave circuits, traffic speeds of 200 words per minute and over are achieved and maintained hour after hour in clearing radiograms. Nor is accuracy sacrificed in the least, for present-day radio traffic is handled almost exclusively by automatic means. Radiograms are typed on a perforator key board whose tape is subsequently passed through an automatic transmitter to form perfect dots and dashes. At the receiving station, signals are reproduced on a paper tape, to be translated, and typewritten directly on radiogram blanks.

The efficiency of our present circuits is reflected in lower transoceanic communication rates. Cable companies, which for years maintained high rates in the absence of competition, have been forced to lower them, and the American public has thus become the residuary legatee of cheaper and better international communication.

The past two years have witnessed the growing commercial use of photoradiograms. Radio has thus developed the added feature of the facsimile message. This service is extensively employed in flashing news, photographs, documents, fashion sketches, and signatures across ocean and continent. Checks, too, are being transmitted by radiogram, and honored when presented an hour or two later, thousands of miles away. The photoradiogram is no longer an experiment. Daily, it is handling its share of the communications of our social organization which cannot be translated into words and telegraphic code. It is even probable that the photoradiogram method may ultimately displace the time-honored code by handling messages in their original form.

The Alexanderson alternators are still at work. But American inventive and engineering genius has not been content to rest on this achievement. Within the past two years, many short-wave channels have been inaugurated, with a marked saving in original investment and operating costs and a considerable increase in traffic speed. More recently, the directive feature, as exemplified in the British beam transmitter and the R.C.A. projector transmitter, has been added and gives promise of still greater efficiency. These developments assure the necessary radio circuits for years to come, even in the face of the threat of an overcrowded air. With both directive and selective differences, it is possible to inaugurate still more tangible radio circuits which shall maintain their individuality.

On the high seas, American marine radio has achieved a preeminent place, both in scope and efficiency. Recently, in the interests of higher efficiency, hundreds of American vessels have been refitted with the vacuum tube transmitter. This has superseded the spark or arc type, with marked gain in distance, reliability, and selectivity. The continuous-wave operation made possible by the vacuum tube transmitter permits of added channels in the limited wave bands set aside for marine radio traffic. The scattered and isolated land stations of years gone by have been replaced by a comparative handful of marine radio centrals with multiple transmitters and receivers to provide the necessary channels for taking care of the greatly increased traffic flow. More than 500 ships have already been equipped with vacuum tube transmitters and others are shortly to follow, even though the recent International Radio Telegraphy Conference at Washington has set 1940 as the date for the final conversion of all marine radio transmitters to the vacuum type.

Besides giving the modern navigator an invisible thread of communication reaching to other ships and to the shore, radio has provided him with the direction finder or radio compass as a means of determining his position. The Bureau of Lighthouses has cooperated by installing radio beacons, or automatic radio transmitters which flash identifying signals, at crucial points along our coasts. The direction finder has virtually dissolved fog and blackness, and thousands of precious hours are annually saved for American shippers and passengers.

In marine radio, as well as in the transatlantic field, America has assumed the leadership, not only for ships flying the Stars and Stripes, but also for other vessels coming to our shores and utilizing our land station facilities.

And while radio has reached out across the waves, it has also found a means of contacting the broad United States itself, and entering the homes of its citizens. Radio broadcasting had its beginnings in certain radio telephone experiments conducted by the Westinghouse organization at East Pittsburgh. The intense interest displayed by the mere handful of listeners provided with the dot-dash receivers of the time, convinced American commercial instinct that here was the seed of a new industry. Today, this infant industry supports over 320,000 workers, over 28,000 retail shops, over 1200 factories, over 700 broadcasting stations, utilizes tens of thousands of miles of telephone and telegraph lines for network operation in reaching thirty-five millions of listeners, and represents an annual trade close to half a billion dollars.

America has led the way in the matter of radio broadcasting. Other nations, hitherto frowning on amateur radio activities, have been compelled to lift state-imposed bans and provide their peoples with the many blessings of mass communication. From the pioneer station KDKA, broadcasting has spread to many lands, until today it touches every part of the civilized world with a growing interchange of programs to make for better understanding and more lasting peace.

Returning briefly to the international aspect of radio, it was to be expected that the leadership of America in overseas radio communication could not be retained without a struggle with other nations. Thus the British Empire so long dominant and so dependent upon communication with all parts of the world was bound to contest with the United States the radio supremacy of the world.

With a wisdom born of the many more centuries in which the sons of Britain have gained an experience greater than that of our own statesmen in foreign policies, it is perhaps natural that they should, sooner than our government authorities, recognize the value of unification of communication in a world-wide sense.

During its 150 years of existence, the United States has never had but one consistently maintained foreign policy, namely, the Monroe Doctrine. Great Britain, on the other hand, in more than a thousand years has probably had more than a thousand such policies. The British system of government seems far better adapted to a continuity of foreign policy than our own, which is not saying that our own system is not the best in many other respects.

During the last few months, it has become apparent to the cable interests of Great Britain that the growing radio supremacy of the United States, and in particular the greater efficiency of the beam system of transmission as compared to the older cable method, has directly challenged the cable leadership of Great Britain. As a consequence of this trend, the older country has recently taken steps to meet this challenge in bringing about the unification of cable and radio interests. This will undoubtedly strengthen the position of Great Britain both in times of war and in peace, affording, as it will, communication by British circuit to practically every foreign port and principal city of the world.

The American answer to this challenge can only be made by submitting the great communication companies, both cable and radio, to proper government regulation as to rates while exempting them from the operation of the anti-trust laws and permitting unification here and thus meeting the thrust of unification from abroad.

And so the radio industry in America has played a major rôle, not only in the development of a national consciousness in our own people, but also in the cosmopolitan consciousness of the world at large. More than all the peace conferences of history, it has served to make the concept of "Peace on Earth, Good Will toward Men" a reality, and, taking the world by the hand, has led it one big step farther down that shadowy trail that ends in Utopia.

THE NATIONAL MAGAZINE OF THE AIR[1]

MERLIN H. AYLESWORTH

Mr. Aylesworth, President of the National Broadcasting Company, delivered this address before the students of the Graduate School of Business Administration, Harvard University, 1928.

The story of broadcasting is the story of an experiment which became an art, and an art which became an industry. The transition from mere experiment to permanent institution was an astonishingly rapid one, and posed a question which demanded a supremely rational and intelligent solution: who shall pay for broadcasting? In answering this question, we have uncovered not only the economic solution of the broadcasting problem but also a new and virile force in public relations, and a potent medium of supplementary advertising which offers untold possibilities to the industrialist of today and tomorrow. A new day, indeed, is dawning in the realms of commerce, industry, and national affairs.

Before we discuss present-day broadcasting activities and their import, however, we must turn in retrospect to the obscure beginnings of the broadcasting art, in order that we may be in a better position to appreciate and appraise what has been done.

Radio telephony, originally developed for private, point-to-point communication, proved itself a glorified party line. Everyone who wished to listen in could do so. Furthermore, because of the common medium employed, it was soon found that there was room for only a very limited number of communication channels. Fantastic pocket radio telephones for every man, woman, and child existed only in the nimble minds of the unscrupulous promoters who exploited them. Gullible persons who eagerly embraced them as a means of doing away with the trouble and the cost of the time-honored wire telephone were speedily disillusioned.

Prior to 1920, various amateurs had undertaken experiments in the field of wireless telephone transmission. Among these was Dr. Frank Conrad, an engineer of the Westinghouse Electric and Manufacturing

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[1] By permission of the author.

Company of East Pittsburgh. Conrad, experimenting with a wireless telephone transmitter installed in a garage in the rear of his home, sent out crude programs featuring phonograph records in addition to the usual voice transmission. His impromptu concerts covered a wide range and were enthusiastically received by the mere handful of persons equipped with radio receivers whose main function, up to this time, had been the interception of the dot-dash messages of radio telegraph traffic.

Mr. H. P. Davis, the Vice-president of the Westinghouse organization, who was watching these experiments, sensed the enormous possibilities of this medium for mass communication and public service, inaugurated a regular broadcasting service by a radio telephone transmitter installed at the Westinghouse plant. Thus came into existence that station which has become famous as "KDKA, the Pioneer Broadcasting Station of the World." The new idea was first introduced to an amazed public with the broadcasting of the presidential election returns of 1920.

To indulge in a statistical survey of the rapid growth of broadcasting would be mere reiteration. Suffice it to say that KDKA was followed by other broadcasting stations which sprang up like the proverbial mushroom in our various centers of population. The radio stations of the Westinghouse Electric and Manufacturing Company and the General Electric Company, KDKA and KYW, and WGY and KOA, have participated in advancing the scientific progress of radio broadcasting. Newspapers, manufacturing concerns, retail organizations, universities, municipalities, state governments, and even private individuals, thrilled at the prospect of making an entrance into countless thousands of homes, rushed pell-mell into the new enterprise. There was no lack of program material, and microphones throughout the country were daily fed on an endless stream of talks, phonograph and automatic piano music, selections by amateur vocalists and musicians, and abstracts from books and newspaper items. The mere novelty of hearing words or music come through the air and into the four walls of the home was sufficient to justify any program feature.

And so broadcasting, like Topsy, just "growed" in a rambling, aimless way. It was merely an experiment, and little thought was given to its future or to the problems which it might entail.

But the inexorable laws of economics soon brought themselves to bear upon the situation. The radio audience which, in 1922, was a scant 100,000, had increased to several millions by 1924; and with increased size had come discrimination. Having outgrown the pristine thrill which always attaches itself to the novel, it became blasé and insisted on genuine entertainment. It was no longer willing to waste its time and power on amateur talent, but came to expect of the broadcasting station the same quality and perfection of entertainment which the stage and screen were wont to furnish. Then, too, the financial perquisites of broadcasting were growing by leaps and bounds, with no direct and adequate financial returns in sight. Foreign countries, in their solution of the economic problem of broadcasting, had shifted the burden to the listener-in, requiring him to pay a license fee. But the United States, having started to give broadcasting service away free, could not logically begin charging for it. Thus broadcasting, as practiced in this country, achieved a distinction unique in the annals of the world's history—it gave something for nothing.

Nevertheless, the number of active broadcasters increased disproportionately. Mere imitation proved to be a potent factor in overcrowding the field, and the number of broadcasters on the air rose from a meager handful in 1922 to a high-water mark of 722 in 1927. Congestion and chaos menaced the nascent art, since the ether could accommodate but a limited number of broadcast programs at one time.

The radio public of this country owes a sincere debt of gratitude to the American Telephone and Telegraph Company. To this organization must go the credit for the organization of network broadcasting to a group of radio stations through the use of wire facilities equipped for the purpose. The Western Electric Company, in its capacity as one of the foremost producers of radio telephone transmitting apparatus, found itself in receipt of many requests for equipment from those desiring to broadcast. As a matter of fact, in 1922, over one hundred such requests were received from New York City alone. It seemed that those who felt themselves "called" were, like the sons of Abraham, "numberless as the sands of the sea and the stars in the firmament." The fact that the "air" was already crowded to overflowing did not discourage these zealous crusaders in the least. The American Telephone and Telegraph Company, through its close affiliation with the Western Electric Company, was in a position to sense the growing demand for broadcast transmitting facilities.

Accordingly, as a means of presenting the situation in its true light, the American Telephone and Telegraph Company approached the individuals and groups who were clamoring for a place on the air, and in a friendly way, put the following questions to them:

1. Do you really appreciate the cost of broadcasting? Considerable though the initial cost may be, it is but the first item in a geometrically increasing series of expenditures.

2. Do you actually need a broadcasting transmitter? Have you a real message to convey? Analyzed in the cold light of reason, your desires are perhaps intangible and unsound.

3. Do you realize the congestion which even now obtains? Have you ever considered how much greater this would become if restriction were thrown to the winds? Submerge your own plans, for the nonce, in a consideration of broadcasting as a whole.

But the American Telephone and Telegraph Company did not content itself with a mere academic presentation of the problem. It went a step further and offered broadcasting facilities to those who, undaunted by a clearer realization of the enterprise into which they had wished to rush blindly, were still desirous of utilizing this new medium of mass communication.

The broadcasting and publishing fields present a parallel altogether too striking to be ignored. Both the director of a broadcasting studio and the publisher of a national magazine are faced with a problem which is basically the same, although its dénouement is, of course, totally different. The problem is one which Walter Lippmann has aptly called "enlistment of interest." In order that he may sell his magazine to as wide a public as possible, the editor must see to it that his editorial content, or text matter, is of high quality and wide appeal. It is on this, and this alone, that his circulation depends. When he has achieved this extensive "coverage" he is in a position to sell space in his publication to such individuals and corporations as have a message which they wish to bring before the public. In other words, he is in a position to sell advertising space.

Now the broadcaster is in the same situation. It is only when, through the intrinsic excellence of his programs, he has built up a clientele, or radio audience, that he can sell his "space," which happens to be time, to those who wish to come before the public with a message, a product, or an idea.

Station WEAF, in New York City, establishing, at the very outset of its career, the highest form of efficiency and artistry in its programs, commanded a far greater public than any new station could possibly aspire to. And now, space or time on the WEAF programs, which had become a national institution, was being offered to those who had expressed a desire to engage in broadcasting on their own account. Thus the idea of toll broadcasting came into being, marking a definite step forward in the economic solution of the problem. Facilities for broadcast transmission and, more important still, an assured audience were now made available for those who wished to utilize them.

The first commercial feature undertaken by WEAF took the form of a ten-minute talk under the auspices of the Queensborough Corporation, a realty organization interested in the development of Jackson Heights in Long Island City. Talks at that time still bulked large in the radio program, for the listeners had not reached the degree of sophistication where they fought shy of them in favor of musical programs. It soon became painfully apparent, however, that these talks, unless they were on subjects of absorbing interest, were poor broadcast material. Accordingly, good music, sponsored by the organization seeking good will and recognition, came into vogue as part of the *modus operandi* of toll broadcasting.

Among the first advertisers to recognize this salient fact was Browning, King and Company, a well-known clothing house of New York City. It introduced the sponsored musical program, and listeners soon grew accustomed to hearing their announcer say: "You will now have an hour of dance music by the Browning, King orchestra, coming to you through the courtesy of Browning, King and Company of New York City." The Lucky Strike orchestra, sponsored by the makers of Lucky Strike cigarettes, was another pioneer in this type of program designed to establish good will and featuring the ultraconservative "courtesy" announcement permitted by the stringent broadcast policy of the telephone company.

All this early toll broadcasting was handled exclusively through Station WEAF. It soon became apparent, however, that the nation-wide organizations which had taken up this new medium for catching the public ear were desirous of reaching not only listeners within the range of the New York City station but those in other metropolitan areas as well. It was natural that the American Telephone and Telegraph Company, equipped as it was with the requisite telephone line facilities for linking scattered stations, should introduce network broadcasting when the demands of the advertisers warranted it. This was done in due course of time, with a twofold object in view: first, to make the program features in New York City, the amusement center of the nation, available to stations in other and less favorably situated communities; and second, to secure for the toll broadcasters a greater coverage or radio audience.

The network broadcasting system of the American Telephone and Telegraph Company, with WEAF for its key station, enjoyed a remarkable growth. Soon it covered New England; then it reached southward into Philadelphia and Washington; and west through Buffalo, Pittsburgh, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, Davenport, Minneapolis and Kansas City.

The first feature handled on a national basis was the Victor program on New Year's Night of 1925. So many stations had requested this program that all the permanent and many of the temporary stations were linked together for the occasion.

The American Telephone and Telegraph Company had now proved to its satisfaction that network broadcasting was feasible from a scientific standpoint and decided to retire from the field of radio broadcasting. The Telephone Company then sold WEAF to the Radio Corporation of America and made a non-exclusive contract with the Radio Corporation for the leasing of permanent telephone wires for national service.

Late in the year 1926, the National Broadcasting Company was organized by the General Electric Company, the Westinghouse Electric and Manufacturing Company, and the Radio Corporation of America. The new company purchased Station WEAF, which, incidentally, is the only broadcasting station owned by the National Broadcasting Company today. The company also purchased from the Radio Corporation of America its rights for broadcasting, and leased radio telephone lines.

At the time the National Broadcasting Company purchased WEAF and assumed the management and operation of the existing network, the facilities comprised approximately 3,600 circuit miles of special telephone lines, with Boston, Hartford, Providence, Worcester, Philadelphia and Washington linked by permanent wire facilities, while the remainder of the eighteen stations were on a temporary wire basis.

Early in 1927, the National Broadcasting Company assumed the management and operation of stations WJZ in New York City and WRC in Washington, both of the Radio Corporation of America, together with a considerable network which had been built up by that organization in collaboration with its associates, the General Electric Company and the Westinghouse company. With WJZ as the key station, this group became known as the Blue Network, offering an alternative program in virtually the same territory as the Red Network. Still later came the more complete development of the Red and Blue networks, as well as supplementary networks available for use with either. This was followed by the formation of the Pacific Coast network, with seven leading stations receiving service from San Francisco. In this manner, the National Broadcasting Company outgrew its early sectional limitations and became a national organization in the fullest sense of the term.

One of the first problems recognized by the young organization was the crying need for a more definite and specific broadcast appeal. The National Broadcasting Company was established with the twofold purpose of sustaining interest in broadcasting and of insuring the permanence of the infant radio industry. It was keenly alive to its responsibilities to the American public, which had invested millions in radio equipment, believing broadcasting to be a permanent institution. It had to evolve an industry out of the nascent broadcasting art, which, in many respects, was still an experiment. The economic phase of broadcasting continued to be a prime consideration.

The sponsored program has helped to solve the economic problem of broadcasting. It has developed broadcasting from an experiment to a legitimate branch of advertising and publicity whose manifold possibilities are capable of great development. The purchase of a magazine of national reputation brings to the buyer, at a ridiculously low cost, the writings of the leading authors and the illustrations of the leading artists. And the reason for it all lies in the generous support of the national advertiser.

We who are in a position to know, feel that broadcasting can do these things for the sponsor:

1. It can create a *consumer acceptance* of the product and a better appreciation of the manufacturer. The quality of the product can be suggested by the quality of the program; and goodwill, hitherto the great desideratum of the broadcast appeal, can still be retained.
2. It can increase *dealer cooperation.* Dealers are radio listeners just as much as are the customers. In fact, it has been shown that some dealers are more partial to this form of advertising than to any other. It is, therefore, in many cases, most effective in securing the desired cooperation.
3. It can *increase the value of space advertising.* The broadcast feature, with its constant appeal, promotes a pseudofriendship, idyllic in nature, between the listeners and certain performers whom they have come to associate with a definite company or product. The listener reads the printed advertising of these organizations with increased interest because he feels a sort of *phantasmagoric* contact between them and him.

Having determined what broadcasting *can* do for the sponsor, let us examine a still more pertinent proposition, to wit: *Does* broadcasting really do what it is supposed to do?

The accurate analysis of so intangible, so impalpable a thing as a radio audience, might seem, at first blush, a wellnigh impossible task. There are so many variables, so many things beyond the pale of normal existence. Yet we have succeeded in solving the problem and resolving it into understandable factors. Thousands of questionnaires, intimate contact with local newspapers, and statistical procedure applied to census figures have given us a reasonably accurate cross-section of the radio audience. The "blue sky" days, when the whole world was held temptingly before the dazzled eyes of the sponsor, have evanesced into thin air.

It is estimated that each broadcast receiver serves an average audience of five persons. In addition, a conservative estimate places the average reliable service range of each of our network broadcasting stations at 100 miles. Again, there are approximately seven million receivers within the effective range of our Red, Blue, Pacific, and supplementary networks. Thus, the total audience available through our networks would be in excess of thirty million—*if* every receiver were tuned in on our program.

The fact is, however, that many other broadcasting stations are also trying to catch the ear of the listener. Making allowance for sets tuned to these other programs, sets not in use, sets out of order or in need of new tubes or batteries, we delete 75 per cent of the grand total of thirty million possible listeners, leaving us a residue of seven and a half million. These we claim as our reasonable minimum audience.

Continuing the analysis, it is essential that we know the *kind* of people we are reaching. Is the radio audience a sound market? Do the listeners, as a group, represent sufficient purchasing power to make it worth the sponsor's while to reach them?

In the first place, it must be obvious that the mere possession of a radio receiving set, averaging in price $75, bespeaks a willingness to spend money for luxuries, and we learn that 45 per cent of our radio audience own cars, 50 per cent of them own their own homes, and 40 per cent of them own pianos. We realize at once that the possession of a radio set has given us the means of picking out the better class of families in a community.

Nor can we overlook the editorial phase of broadcasting. Both broadcaster and publisher must face virtually the same problems. First is the creation of an editorial policy of maximum appeal to the public. Next, the securing of public response in the form of subscriptions. Third, the acceptance of the medium by industry and commerce seeking an outlet for their message.

The ideal daily broadcast program, like the ideal magazine, should be of sufficient variety to interest the largest possible number of people. Although the publisher cannot expect to make a magazine that pleases everybody, nevertheless, he confidently expects to have at least one article in each issue which will meet with universal approval. Likewise, the broadcaster must adapt his program to the widely divergent tastes of the radio audience. And so it has come to pass that this national magazine of the air has as its makeup news items, religious messages, services for discussion of public affairs, weather forecasts, sporting events, health talks, household hints, cooking recipes, art, bridge lessons, fashion talks, music, romance, fiction, light entertainment, and so on. In short, broadcasting has all of the fundamental requirements of a great national medium.

It is often asked whether broadcast advertising can include enough copy to do a good selling job, thereby justifying the not inconsiderable expenditure it involves.

It is quite generally admitted that 85 per cent of all the sales are made because the public has a previous acquaintance with the product involved. The American public has accustomed itself to buying definite brands, products, reputation, or prestige. Furthermore, an analysis of modern merchandising discloses that 85 per cent of all goods sold owe their popularity to the prior creation of a desire in the public consciousness for the product. This desire ultimately blossoms forth in the form of actual purchase.

In the field of advertising, these conclusions have been quite fully substantiated in actual practice. Copy is being condensed, intensified, "high-powered," if you will. In the rush and whirl of modern life, advertising must tell its story as quickly, as concisely, and as intelligently as possible. Broadcast tempo, therefore, is quite in keeping with modern advertising trends.

Broadcast advertising is unique in that its advertising and editorial copy are combined in the sponsored program. The two are blended in a perfect union. Thus we speak of the Goodrich Hour, the Ever Ready Hour, the Clicquot Club Esquimaux, and the General Motors Party, tacitly and unconsciously coupling the editorial or program features which appeal to us with the advertising message they contain. Space advertising is totally different. The advertising copy appears in one place and the editorial matter in another. There is no mutual absorption of the two interests for undivided attention of the reader.

Broadcasting is a great coordinating factor. No comprehensive scheme of national advertising is complete without it. Broadcasting, basically indirect in nature, can never supply "reason why" copy. This is the province of space advertising, which must always form the basis of the campaign. But broadcasting can do much to stimulate interest in the product and to help to sell more completely the space copy appearing in newspapers and magazines. The present-day trend is towards the fullest cooperation between broadcast advertising and space copy, each emphasizing and complementing the other. Many broadcast advertisers are merchandising their programs with quite as much thoroughness and care as they merchandise their products or resell their magazine advertising in reprint form.

Broadcasting has been named "the fourth dimension of advertising" and is now a definitely established force in the advertising world. Since late in 1927, it has been recognized as a medium by the leading advertising agencies. Today the advertiser and the advertising agency are investigating broadcasting just as critically as they investigate newspapers and magazines. Circulation or coverage and type of audience are carefully checked with broadcast rates; program material is critically judged; the place of broadcast advertising in the campaign is determined in advance; and all the factors are cut to produce the most perfect design possible. Jobbers and dealers are apprised of broadcasting arrangements, just as they are notified of nation-wide advertising campaigns.

Broadcast advertising has made room for a type of advertising specialists—the "continuity" writer. These specialists make a study of program features that have the maximum appeal for a radio audience, and devise means of weaving the advertising motif into the warp and woof of entertainment. Their task is infinitely more complicated than that of the copy writer, since advertising and entertainment must each complement the other.

In conclusion, we present a statement touching the facilities of the National Broadcasting Company as of today.

The Red Network comprises some twenty permanent outlets (associated radio stations) connected by 3,370 miles of permanent line.

The Blue Network has eleven permanent outlets (associated radio stations) connected by 2,890 miles of permanent line.

The Pacific Coast Network includes six permanent outlets connected by 1,700 miles of permanent line.

The supplementary cities, available for either Red or Blue Network programs, have three permanent outlets with 1,100 miles of line. The Southwestern Group has two permanent and two temporary outlets connected by 580 miles of permanent and 550 miles of temporary line. The Southeastern Group has four permanent outlets with 800 miles of wire and one temporary outlet with 250 miles of line. Stations at Jacksonville, Fort Worth, and Richmond are available as special additions and are connected respectively by 330, 40, and 150 miles of temporary line.

Thus we have forty-nine associated radio stations connected by radio telephone wires with a total mileage of the Red, Blue and Pacific Coast networks of 11,770, and 530 miles for special service to three additional stations.

This, briefly, is the story of the sponsored program. Broadcasting, seeking for a solution of the economic problems facing it as the "Magazine of the Air," has very naturally patterned after the publishing field, adopting its best and most acceptable methods of approach to the public, including the admission of the advertiser to this audience under proper regulation and through the sponsored program. We already have assurance that the American people, recognizing the basic principle that value received must be obtained for the value given, will continue their enthusiastic approval of the sponsored program. This answers the question, "Who shall pay for the broadcasting of the future?" making possible still greater and more important developments, with satisfaction to all and with the burden of expense equitably distributed.

My address on the subject of sponsored broadcasting has necessarily held me to the business development of the National Broadcasting Company and to our relationship to fifty-two associated stations. Scattered throughout the United States, these associated radio stations are connected by the wires of our system.

With the exception of WEAF owned by the company, and WJZ and WRC managed by us, these radio stations are independently owned and operated. The service of the National Broadcasting Company and sixty or more national industrial institutions may well be compared to the Associated Press, the United Press, the International News Service, and to the city newspapers. These associated radio stations have the full power to accept or refuse the programs of the National Broadcasting Company or our national sponsors.

The Columbia Broadcasting Company, with sixteen associated stations, also occupies a field in sponsored broadcasting. Several hundred other radio stations operate in all parts of the United States. The listener may tune in on the programs of his choosing or listen not at all. A movement of the dial shuts out the objectionable program.

The new National Magazine of the Air, as I term the National Broadcasting Company, has its editorial section composed of religious talks and services, discussions of public affairs, fiction, plays, news, sporting events, symphony and so-called "popular" orchestras, vocal performers, and children's entertainment. Ninety-nine per cent of the actual program time is unrelated to the message of the advertiser.

A public advisory council of prominent men and women assure fairness of policy on all matters of public interest.

Everchanging programs day and night; end of isolation in remote places; a new interest for the shut-ins; great music, the universal language of the rich and poor of all races in the cities and on the countryside; a Sunday congregation numbering millions for great preachers; a new era in religion; the voice of the President of the United States in the homes of our people; great celebrations in honor of the heroes of the world during which the entire nation listens in; Senators and Congressmen debating in Washington; the national conventions with the actual voices of the statesmen in action; all make radio broadcasting in the United States a new and constructive force for national understanding and steadily increasing literacy.

The aid and cooperation of the press has brought to every home advance information of the radio programs, with appropriate previews and reviews of the best in radio, encouraging and inspiring this new national voice to greater effort.

Radio broadcasting provides a great medium for religion, music, debate, drama, and information. Public opinion controls its destiny and guides the way to greater public service.

TRAINING IN DEPARTMENT STORES[1]

SAMUEL REYBURN

Mr. Reyburn, President of Lord and Taylor, New York, delivered this address before the Store Managers' Division and the Controllers' Congress met in joint session at Chicago, May 12, 1927.

I am sure it gives me a great deal more pleasure to be here with you than it gives you, if the introduction that I have just had may be taken as a straightforward statement rather than the use of poetic license on the part of the chairman.

One thing makes it easier for me now to get up and address an audience like this than it used to; that is, that I look upon you as associates, as partners in business, and in the training policy of our house we do a good deal of conference work. We have a great many organized meetings, and I get a great deal of practice in talking to my partners.

Then there is another thing that I heard some time ago, and possibly there are one or two of you here who have not heard it, which is quite helpful to a speaker on an occasion like this. It was that you must remember that an expert is only a very ordinary fellow from another place.

When I face an audience with the explanation that I am just a very ordinary fellow I feel that I am not trying to put anything over, and in consequence I feel very much more comfortable.

Although I am down on the program for a talk on the subject, Training for Selling, I take it that there will be no objection to my giving more than I am asked to give, and I have chosen a broader subject. My talk is on Training in Department Stores. After all, though, it is training for selling because such organizations are gotten together for the primary purpose of selling, and it is easy to see that all training that is done in a department store is, in fact, training for selling.

In addressing a live-minded, open-minded group such as this, no explanation need be given as to the necessity of relying so much on a somewhat abstract approach and using so little of the concrete in my formal talk. This is a big subject and to treat it comprehensively in a short address, we have to deal with it to a considerable extent in a philosophic manner. However, I will try to finish in time for a discussion during which, no doubt, the questions will develop many concrete problems on this subject.

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[1] By permission of the author. Reprinted from *Proceedings* of the National Retail Dry Goods Association Convention.

It has become customary in the Lord and Taylor organization, when addressing a group of people on a given subject, for the speaker to preface his remarks with a definition of the subject. In defining the subject, the speaker has believed that if his mind and the minds of his audience were to meet and, for some time, to follow the same lines of thought, it would be necessary that a meeting place be found. Words are meant to be a medium of communication between minds; but if we would be certain that they do serve that purpose we must make sure that the minds concerned have the same associations to the words being used. Because all of our experiences have not been common, we accumulate associations to words that may differ very, very greatly.

Definition of Training Needed

We are going to discuss training this morning and its value in selling, or in storekeeping, and I am going to begin by defining the word "training" before we consider its place and use. Some years ago, the head of the training department of Lord and Taylor, because she was disappointed at the lack of interest shown by most of the important leaders of the group in such work, felt the need for a definition of "education" and of "training" that would be generally acceptable to our organization, a definition that would stir the imagination and vision and constantly bring home, by precept and example, to every executive his or her share of the responsibility in the training of all the members of the organization. We compromised with the ridicule that followed the first attempt made at teaching, by calling that teaching "instruction." The teacher went on the payroll as an "instructress." As we gained courage we call the work "education" and at the time I speak of we were trying the third and last name for the work, "training." After consulting many dictionaries and textbooks, the head of the training department found a definition of "education" in the "Philosophy of Education" by Herman Harrell Horne, Ph.D. It was one that answered the purpose admirably. Professor Horne has been all of his adult life a student of philosophy and pedagogy, and is an accepted authority on these subjects. We find in the introduction to his book this definition of "education" that expresses in a few well-chosen words the thought that we have in that organization concerning education. Probably the majority of you, when I use the word "education," think of schools, high schools, colleges, universities, degrees, books and study. Only a few of you will think of factories, printing plants, banks, stores, conventions of these great trade organizations, jobs and work. Let me read this definition of Professor Horne's, and, as I read it, let each one of you compare it with the associations you had to the word when I first uttered it.

Dr. Horne says:

> Broadly speaking, the whole of life is an education, and life itself in all its phases is the great school. Not a situation in life but leaves its influence on the individual. Every agency of civilization is an education. From this point of view education becomes the resultant upon the individual of the sum total of the influences of life. Every human situation is an educational situation, in which we grow from less to more.

From the paragraph which I have just read, we extracted this definition of education: "Education is the resultant upon the individual of the sum total of all the influences of life." Then we tried to impress this great truth on the minds of every executive in such a way that, for his own improvement and for the improvement of those he had the responsibility of leading, he would open wide his mind to the improvement of environment and, particularly, to the importance of setting the right example, so that influences would be made more helpful to all the ambitious, loyal and industrious employees. When we consider this definition of Professor Horne's, we realize that, while we are being subjected to many, many influences in life, every one of us is being educated. Some of us in important positions are also educating.

This resultant upon the individual of the sum total of the influences of life varies, because we are not all influenced to the same degree, or in the same way. Some of us see so much more, when we look, than others see. Some of us hear so much more, when we listen, than others hear. So some of us become more influenced or better educated by the situations through which we pass than do others. Some situations are specially designed to influence the individual subjected to them. For instance, if you find yourself in a class room in the attitude of mind of a scholar, with a teacher presenting, in an orderly, studied way, definite information, of course, you will be more influenced during that period than you will during a period of the same length of time when, thoughtless of your immediate surroundings, you muse upon some vague and ill-formed notion. So our education differs in kind and in quality.

Many Impressions Received in Business

According to Horne's definition, we are being educated every conscious moment. Because of the pressure that is brought to bear upon us during our business hours from 9 A. M. until 5:30 P. M., we probably receive more education during those hours than during our leisure hours when we are not being so consciously influenced. From the time we enter the business building and on through the whole day, we are being influenced, we are receiving impressions of the people around us, from people to whom we speak and to whom we listen. All these impressions, these influences, contribute to our education, and in every situation we grow from less to more. The business leader who realizes this will strive to secure surroundings for the members of his organization that will serve as constructive and helpful influences. Policies that are sound morally and surroundings that are healthful combined with tolerant and understanding leadership teach self-reliance, self-respect and self-control. These are the qualities from which come those great attributes of mind and spirit we call "imagination," "initiative," "courage," "confidence" and "loyalty." Not one of us, this morning, is quite the same person that he was when he first entered this room. We have seen; we have heard; we have felt. And every impression received through the senses is recorded in our minds. The sum total of yesterday's impressions has been added to all our former impressions; our education has been increased to that extent.

Let us consider, for a few minutes, the case of one of the younger members of a store organization, a fifteen-year-old messenger girl. Perhaps it is the first job that she has held. She has been selected by the employment manager because, during the interview that precedes employment, he has found her to be mentally alert, eager, ambitious and desirous of working for the store. She is probably a graduate of an elementary school, but, because of her associations at home or at play, she may use ungrammatical expressions. Because of the example set for her by those with whom she has associated, she may be boisterous in her manner, loud in her speech, careless in her dress, and inconsiderate of others. So she is when she comes to work. Now, whether she be conscious or not of what is happening to her, the first day she enters a good organization a new educational opportunity begins for her. Constant contact with the woman who is in charge of her department will have an influence on her. Daily contact with other girls who have been subjected to influences in business will have an influence on her. Daily observation of customers in the building will influence her, and slowly she will change, because of these influences. She will lower the tone of her voice, grow quiet in her manner, exhibit better taste in the selection of her clothes, become more considerate of others—all through the influence to which she has been subjected day after day.

Education the Resultant of Life's Influences

You can think of many instances where people with whom you have worked have changed in manner, in dress, in speech, and in general deportment. They have been subjected to influences. They have been educated, because "education is the resultant upon the individual of the sum total of the influences of life."

If, when this messenger girl is employed, she is placed on her job with no instruction, she will take on slowly the education about which we have just spoken. But if, because of the nature of her job and the place she is to occupy in the organization, it is necessary for her in a short time to modulate her voice, to correct her manners, to improve her appearance, then it would be inadvisable to trust to unconscious influence or to the habit of imitation to accomplish these changes. By telling her that such changes are necessary and how they may be made and by outlining in a simple, concise way the duties of her job in a series of lessons, the time it takes to make her an efficient worker can be materially shortened. If this be done according to an organized plan, then we are training her. This is training. So we may define training as a shortening of the educational process. In other words, whenever we attempt to control the influences in a situation and to shorten the time of the educational process, we are training.

Time Factor Increasing in Importance

The time factor in every phase of present-day merchandising has increased in importance. The life term of every merchandise unit has been shortened. Merchandise managers and buyers must be eternally vigilant to keep pace with the constantly changing demand of customers. They must read more, analyze more and scout more. The labor turnover incidental to seasonal work makes it imperative that we shorten the educational process of all new people. With increased buying duties few buyers in a large store now have the time to teach salespeople thoroughly. A buyer in such a store can suggest the lessons and set good examples, but others must be relied upon to do the teaching.

Then, there are the unusual demands for merchandising skill and additional help at Christmas and Easter and the other peaks that must be taken care of. To place a new salesperson in the millinery department two weeks before Easter and to depend upon her own initiative and interest to acquire a knowledge of the styles, the materials of hats and the suitability and appropriateness of certain hats for certain occasions, or expect the buyer or section manager, when business is brisk and the customers need so much attention, to do all training is to lower the standard for service during that period, to jeopardize good will, and to annoy the customer, who in these days of live newspapers and fine magazines is well informed on what she wants before she starts out to shop. There isn't enough time for the influence in the millinery department working upon that girl to turn out a competent, efficient and well-informed salesperson to meet the Easter needs of the customers. The merchandise facts must be gathered and organized and this information presented to the new salesperson in the millinery department in a clear, concise and orderly manner. The store standard for service must be established as soon as possible, and the new salesperson made conscious of her surroundings and her job. While we are doing that for her, we are training.

The regular salespeople in the millinery department who have received an initial training that has quickened their perception, and made them more conscious of themselves and their job, have need of continuous training in new merchandise, in advertised merchandise, in new methods of salesmanship and in changes in system. To trust to the influence of the new merchandise upon the salespeople may result in too long a lapse of time before they become familiar with each new hat, its style content and its use. Training should be done in order to shorten the educational process and to make the regular salespeople familiar with the selling qualities of the new articles of merchandise.

If you and I are agreed that "education is the resultant upon the individual of the sum total of all the influences of life" and that training is merely a shortening of the educational process, then I think we are ready to admit that there is no place in any business organization where training would not be a distinct advantage, both to the business and to the individual trained.

We are all familiar with the bit of philosophy found in the twenty-second chapter of Proverbs, the sixth verse: "Train up a child in the way he should go: and when he is old he will not depart from it." In other words, control and organize the influences affecting the child's development and do not leave them to chance.

Training an Early Step in Civilization

So the idea of training the youth of the race to understand and meet the problems of life is very old. It must have been one of the first steps in civilization. They were trained not alone in the question of religion and morals but in economic and commercial problems. Moses was not only a religious and political leader and teacher; he also taught his people how to meet the economic problems of life. This was true of many of the Hebraic leaders.

Until the last two or three generations, business in Europe and America was transacted almost entirely by small groups; usually a business organization was composed of an individual, the members of his family and perhaps an apprentice or two. The children of the family and such apprentices as were engaged while they were still young were carefully trained by the elders who had been taught when they were young and had learned by experience. This paternalistic method served the world a very long time and it was an admirable service that it gave. The leaders not only trained these youngsters in the detail duties of a particular job, but they trained them in the development of character.

In fact many of the apprentice contracts required the master to give the apprentice a place in the home and to treat him as a member of the family. It is only within the last century in America and the more progressive countries of Europe that the less fortunate classes began to derive great benefits from general schooling. The monopoly on sources of learning so long enjoyed by the wealthy and powerful had been broken more than two centuries before, but great advantages did not begin to reach the masses until recent times.

When greater numbers could read and write and think, their desires increased, and the willingness to work harder to save for the future or to secure the means to gratify some of these desires came to greater numbers. More confidence in self, more faith in others and faith in the future developed in the average man and woman, and as a result of the great mental and spiritual improvement of the masses came the material development and the increase in wealth of our country and, also, in the more progressive European countries.

Out of this increase in the courage and powers of the average man came two of the greatest aids to business in modern civilization: first, the increased consumption of goods of all kinds, and, second, the growth of general credit and a new method of securing capital and organizing large numbers of individuals to conduct big business enterprises. When many men had faith enough and the means to back a good idea, great corporations could be formed to get behind that idea. Many such undertakings required larger organizations of men and women to carry on the work. In the beginning of this phase of business, these larger organizations drew to them the men they needed from the smaller organizations that had trained them under the old methods or, we might say, the old-fashioned way, and for some years corporate organizations depended on the open market for the human skill and ability needed, and for a long time found an adequate supply in that market.

As time passed, more and more of the business was done by large organizations and there were fewer opportunities to train people in the old-fashioned way in small groups. Homes have changed and they do not begin to develop, to "train up a child in the way he should go," as well as they once did. But the old idea did not die; it is still necessary to train if we are to be efficient. So we must adopt a new method, and many of the corporations have realized this and have organized training departments. Department stores have been forced to fall in line. The old idea is now supported quite generally by the new method.

Specialization Keynote of Age

We are constantly hearing that this is the age of the specialist. We are told that to succeed in these complex times, one must specialize. While in its fundamental purpose a department store generalizes by covering a very broad field, at the same time it does specialize by dividing its activities into divisions and subdividing divisions into departments.

A friend of mine recently asked a distinguished professor to define a specialist. He thought for a while and then answered, "A specialist is one who knows more and more about less and less." He did not mean to be facetious or sarcastic or satirical, but he was wise enough to know and frank enough to admit that with the vast accumulation of recorded knowledge now available to students, one person could acquire only a very little, but how little that person could not actually appreciate until he had begun to specialize on a single subject.

We employ a specialist to manage the silk department, and, naturally, we expect him to know more about silks than he does about shoes, which department is in the hands of another specialist. We employ a highly trained accountant as a controller and he specializes in keeping our books and records. So it is a perfectly logical thing that we should employ a teacher trained in the science of pedagogy to specialize in our department of training. We men of practical experience may be good salesmen of material things and may know our business from beginning to end without being able to teach thoroughly and persuasively. The most effective and economical way to handle the problem of teaching in a large business, I have found, is to secure a well-trained teacher and train that teacher in the things that the members of the organization should know and back her judgment as one does that of any other capable executive. Such a teacher should not be selected because of academic distinction; college degrees are sometimes given as a reward for a well-trained memory and are known to be possessed by some graduates who do not think and do not seem to want to learn to think. Like a good sales manager, the head of a training department should be selected for the magnetism of good health, for cheerfulness, friendliness and enthusiasm, those qualities that are so helpful in making quick and effective contacts.

Definite specialized training in department store organization by teachers trained in the science of pedagogy is a new method for carrying on an old idea.

In our experience quite often we find rather big executives making no distinction between ideas and methods. Sometimes they get lost in the maze of method and forget entirely the idea. That probably has happened in this case. Sometimes you hear people speak disparagingly of a scientifically trained teacher for a department store. They seem to think training won't do. As a matter of fact, you can't get along without it.

The only change really is the method.

Teaching or training is concerned with and its accomplishments are achieved in the mental and spiritual lives of people, and results in these spheres are hard to see and their value difficult to appraise. There are no well-known scientific and simple devices such as tables of measures, weights and money, which are so familiar and so useful to merchants in ascertaining and comparing values of material things. Skill in judging physical values is easily acquired. Skill in judging mental and spiritual values is very difficult.

When one has passed his school days and has begun the game of job holding, he is harder to teach. I know of two reasons for this. There may be many others. One that I have in mind is the fear of showing ignorance. The other is the fear that it is buncombe. The people in our organization are a good deal harder to teach than children in school. The head of the training department needs more aid from associates than the teacher of a public school needs from her principal or her school board. The children go there to learn with open minds. They have that set purpose. They have no other big object in mind. They are not out in the competitive world to earn a living, or to earn money to contribute toward maintaining homes, or schools, or churches, or states as we job holders have to do if we are going to keep civilization going.

Dr. Slosson in a recent article compares the brain to a house filled with furniture. He says that the normal person has no vacuum in the brain. Usually the brain is cluttered up with a lot of useless things or, in other words, so full of furniture that you can't move in a new piece without moving an old piece out. So it really is often necessary to train people to move out preconceived notions that are cluttering up the room that you want to occupy with a new idea.

You know, after we are trained and absorb the knowledge that has been given to us by someone else, and probably add to it by our own experience, we assimilate and use it so quickly that we forget its source. We rarely give credit to its source. For example, suppose we consider a merchant with a small organization and assume that he invests $100 in merchandise, that he sells it, and that he keeps his accounts and knows exactly what has happened. He knows whether he has made money or not, but do you think he thinks anything about training? Not at all. Yet if he is successful, he has had his training somewhere. However, he thinks about that merchandise, and sums up the results in terms of the profit that he has made. If he happens to lose, you probably hear him in a loud voice accusing somebody else of giving him the wrong advice. He is perfectly willing, when he has been unsuccessful, to blame it on the training that he has had.

I don't mean to criticize him; he is like I am, he is like you are, he is just human. That is one of the first laws of nature, to protect ourselves and to get results with the least effort possible.

TRAINING PROFIT HARD TO GAUGE

When $100,000 is spent by a large store carrying on research, maintaining a comparison bureau, maintaining a fashion bureau, a bureau of standards, running an analytical adjustment office, rating executives and employees and classifying stocks, by which methods evidence of mistakes and successes is gathered, and from the study of which evidence lesson plans are made, then through a training bureau, teaching the lessons to the members of the organization, there is no way to tell easily, promptly and accurately how much money value comes back. The gain in profits of business that come from training cannot be segregated, it is included in the total profits, and the heads of departments are usually so human that when they look over departmental statements at the end of the month or of the season they are very apt to forget that the good will of the business and the training policies of the organization and training department are entitled to any of the credit when net profits are shown. Sometimes, however, we hear from them in no uncertain tones as to who is to blame if the report shows a loss. There are always permanent or capital values that research and the efforts of the training staff have added that are of considerable magnitude, but are nevertheless intangible. These values are reflected in the minds and spirits of the individuals who compose the organization. Those who have been taught are at work and are making daily returns, but the increased profits resulting from training are not to be definitely or quickly ascertained on that $100,000 purchase. It takes time, imagination and vision to appraise the value.

In conclusion, let me state that since education is going on all the time within the four walls of a store, it is a wise merchant who organizes the influences to which his employees are being subjected every hour of the working day. In other words, he trains. He is also a wise merchant who decides, when training, to use the best tool or instrument and that is the specialist, the teacher. And he is a wise merchant who remembers that no matter how good the instrument may be in itself, its effectiveness depends upon the judgment with which it is used. Whether training shall be individual or group training, in the class room or on the job, in theory or in practice, must be determined by the nature of the job and the conditions under which the training may be done.

As I said in the beginning, the subject given me was not Training but Training for Selling; but my talk has been confined to the definition of training, to its importance and to its application. I have not talked to you about Training for Selling because it is my firm conviction that all training that is done in a department store is, in truth, training for selling.

Discussion

Mr. A. C. Block (Block and Kuhl, Peoria, Ill.): If I may inquire of Mr. Reyburn, I should like to ask to what extent he has been able to get the cooperation of the buyers throughout the store to train the selling help in merchandise. The thing that we try so hard to pass on to the people who sell is that enthusiasm the buyer feels when he makes a purchase. And before we can do that we must pass on the buyer's enthusiasm to the advertising department who advertise the merchandise, to the display manager who puts it in the windows so that finally it may be communicated to the public. I have never been able to see how any scientific instructor or instructress is able to do that in place of the buyer; in other words, the buyer has a specialized knowledge of that merchandise and he after all is the only one, isn't he, who can talk it intelligently?

Mr. Reyburn: Good teachers must constantly learn or they cease to be good teachers. Buyers not trained in teaching usually ignore the principle of reiteration. Time and time again a good buyer with plenty of enthusiasm for the merchandise which he bought has taught it once, and then has become discouraged with the salespeople who could not remember it. Our idea is to let the buyer give the first lesson to her department, if she wants to, at which time the floor section manager or department manager should be there with the teachers.

The buyer is able to enumerate, with the help of the training department, the comparison office and the fashion bureau, all of the good selling points of an article of merchandise. It is tested. If there are as many as twenty selling points about the merchandise, you don't want to use them all. Salespeople can't remember that many points in the first place, and the purchaser would be bored to death. You can pick out the best five selling points and the teacher, the section manager, as well as the buyer, agree on the importance of those points, so that they are all teaching the same thing. The reiteration of that lesson is done by the teacher. The logical presentation, the simple language, is selected by the teacher, and with very little effort a better job of training is done than any buyer could do alone.

In the old days the buyer or the keeper of a small shop had time to train, had time to see every customer. It is not so now. The buyer, particularly if there is a big factor of style in her department, has to be alert, she has to read and think and consult with other people about her merchandise, and watch her stock, and in these modern times does not have time to do that old-fashioned training.

Mr. A. J. Kelly (R. H. White Company, Boston, Mass.): May I ask a question which may sound rather pessimistic or may be rather naive in its purport? Let us assume that we run into years of depression or that some individual store runs into some very lean years. Would you, as head of that store, consider the training department as one of the last sections that you would cut down?

Mr. Reyburn: I am glad you asked that question because I have already been tested on that. I can answer you theoretically and from practical experience as well. I suppose our research departments and our training cost us about one per cent of our sales. The estimate that the controller gives me is three-quarters of one per cent. Several times when we faced an expense problem in the past eleven years, the men who were practically trained and had spent their whole lives in the department store, merchandise men, financial men and service men, always wanted to cut out the training cost.

Our store is organized with only three functional lines or divisions, merchandise, service and finance and records. It is not big enough, it seems to us, to maintain a line of publicity, so that is placed under merchandising.

By the way, part of our teaching is that those lines are not there to separate us, but simply to divide up the duties, the responsibilities and the authority so that the work will be better coordinated. It was a very difficult thing to get the old idea out of that organization that each line was a separate entity and most of the time was at war with the other two lines.

The three men at the top of those lines, together with the head of the house, form the executive committee. They are all on the board of directors and they are the executive committee of the corporation as well as of the operating body.

I remember at three different times of sitting in meetings for hours and even days in an attempt to get those three men to agree that we could not cut out training. Finally, I had to say, "Well, boys, you know I have the veto power, and I am just not going to let you cut it out."

As soon as "the boss," as they call him, or "the old man" when he is out of hearing, stands up for his favorite, then each wants to get in a favorite of his. After I made that decision I would have to watch to see that they did not get back some wasteful expenditure in their particular lines.

Finally, I won those men, and I think they believe now that the harder the times the more you need the facts, and the more you need an efficient body to make that organization conscious of those facts. I don't expect to cut out that three-quarters of one per cent if volume falls off and profits disappear. I may add a little to it, because I can't find out all by myself what is the matter or how to meet those difficulties. I want a trained group that will help me do it.

Mr. W. Z. Tucker (W. A. Wieboldt and Company, Chicago.): Mr. Reyburn very wisely provides that the supervision of educational work be done by the buyers. I should like to ask him, however, if he goes into technical training in a store like his where he employs perhaps sixty or seventy-five buyers, how would the educational department supervise technical training in those various departments?

Mr. Reyburn: The training staff in our store is largely a clearing house of all necessary training. When we laid the foundation and the definition of education and training, as we did about five years ago, it appealed to the imagination of all the buyers and executives all through the house. The head of our training staff took that up with the executives at a dinner. After six years' experience she still felt from the way they treated her that she was an outsider. She quoted a conversation that she had overheard between sales girls who did not recognize her, in which they sneered at the training department. She and I then prepared this talk, basing our philosophy on what we had learned from Horne's book and that did grip them.

I am going to tell you that the whole house believes in training and, consequently, all through the house we have training.

The instruments of training are: the operating committee of chief executives which meets weekly: the executive conference of approximately thirty general executives which meets weekly; the expense committee which meets weekly; the merchandise managers meet weekly; buyers and assistant buyers in the accessory division have a weekly meeting with the merchandise manager and his assistant; there are similar meetings in the fabric division, the apparel division, the young people's store and the man's shop; the entire merchandise division meets monthly at the stock and net result statement meeting.

We have a service manager on each selling floor, and these service managers meet weekly as a group and then meet individually with their section managers each week. The service division as a whole meets monthly. The advertising department meets weekly. The bureau of fashions and interiors meets every week. The training department meets as a group weekly. All of these are educational groups where all kinds of information, including the technical information, is brought. Lesson plans are agreed upon, and in every case where the buyer or the section manager is capable of teaching, he is encouraged to teach. He teaches the first lesson every time and the follow-up is made then by the training staff.

There are weekly schedules for the guidance of the training department, the section managers and for the initial training of buyers and assistant buyers.

They teach store organization, department organization, they talk job analysis. They are taught classifications of inventories; they are taught all we know about domestic markets, foreign markets, buying aids, the receiving room, the accounts payable, the advertising contracts, comparisons, adjustments, the service division and the training department and how they function. They are taught assortments, they are given special instruction on how to handle slow selling, how to take inventory, classification reports, and statement analyses. They are taught forecasting, financial policies, merchandising policies, and they are taught how to rate salespeople.

They are given technical information. There is a course in color, design and style for assistant buyers.

On each Wednesday afternoon for the past twelve weeks, we have had a lecture on color, hue, tint, design in merchandise, principles of design, style and merchandise, good style in apparel and dress accessories, good style in fabrics and dress accessories, and so on. That specific information is supplemented by all the general information we can get. We have, we think, a pretty good technical training program.

Mr. Tucker: Would you permit an applicant as a salesman in the shoe department without any previous experience to go on your selling force without definite information as to merchandise?

Mr. Reyburn: We would not.

Mr. Tucker: Then whose function is it to see that he is definitely trained?

Mr. Reyburn: The training department teaches him all system and methods, the styles in shoes, the prices in shoes, their location in stock. The section manager helps the training staff. You see, we go on the theory that every executive to be efficient must be a teacher and a leader, and the training staff works through the sponsors and through the section managers in that way.

There is one thing I forgot to mention and yet it is one of the most important things we do. We have an executive training course. It consists of twenty-seven meetings. There are twenty-five lectures and there are two evenings given over to summary and discussion. This course is given on Friday evenings. There were about ninety-three students in that class this year. The attendance has been unusually good. At each class a copy of the speaker's talk is distributed to each student there. And each gets a questionnaire with three questions attached to the copy of the talk.

I delivered the first lecture. I had to reduce it to writing. Executive Training was my subject. The questions attached to my talk were: (1) In what way will Lord and Taylor profit by giving you the executive training course? (2) Why is the problem attitude of mind best when considering a business problem? (3) What do you consider the most important factor of successful teamwork in business?

I am going to read some of the answers to that first question: In what way will Lord and Taylor profit by giving you the executive training course?

A section manager wrote:

> Senior and junior executives coming together in a course like this leads to better understanding and cooperation all along the line. The workers get to understand better the ideals of the house. These ideals are set before them by senior executives as in this course.

Here is what the head of stock in some department wrote:

> Executive training broadens the intellect, giving Lord and Taylor the service of a group of more practically trained people. It also helps each one to a better understanding of the kind of service required by Lord and Taylor.

One section manager is so zealous that he goes home each night, answers all three of his questions and mails them, and they get back the next day about ten o'clock to the training office. He is always the first one to send in his answers. To the second question he wrote:

> It is best because you forget the man who is standing next to you, you forget yourself, and see only the problem and everything relating to it.

Here is the answer of a woman buyer:

> The problem attitude of mind is best in considering business problems or any problem. It helps to eliminate persons and personalities and puts self in background. Personalities may allow friendship or favoritism to play a part in the decision. Self may allow personal loss and gain to affect the decision. Business

problems may be considered with a broad mind and the decision given regardless of persons or personalities based only on policy.

We have given this course about eight times. It has been better this last year than ever before, and it has been extended.

In that group this year we have eleven very bright salespeople, and people from the non-selling division who are not yet executives. The rest all hold executive positions from the newest assistant buyer or assistant in the department up to some of our best buyers. The lectures are all delivered by senior executives. The history of Lord and Taylor is given by one of the teachers, merchandising by the head of merchandise, merchandise standards by a divisional merchandise manager, fashions and interiors by the head of the fashion bureau, forecasting is given by a merchandise manager, domestic markets by another merchandise manager, foreign markets by the head of our foreign office. To deliver these lectures and get them in satisfactory shape, every executive has to dig into his problem and try to understand it as best he can. In most of those cases I try to help them. Usually, the first draft of their talk is sent to me and I have perhaps a whole week or a week-end before they come to see me, and in that time I read the draft and make suggestions to them. At the same time a copy goes to the training staff. Those lectures are quite good. They teach the executive how to sell an idea, and it is a little more difficult to sell an idea than it is to sell an article; you can't put it over quite so easily and so the mind ought to be specially trained for that.

Mr. H. W. Sjostrom (Walker's, Los Angeles, Calif.): I would like to ask Mr. Reyburn when it becomes necessary to engage a large number of new people, perhaps increase your selling force seventy-five to one hundred per cent, how many days' training should those salespeople have before they start selling?

Mr. Reyburn: You can't lay down a regular rule. When you gather your extra people you may find some who are experienced and, in the interviews, you classify them. We try now, when we expand our toy department from about ten people to eighty or ninety, to take them on three weeks earlier than we used to. These ten regular salespeople become captains and teachers to an extent. If they have any executive ability at all, you train them to help you train the others, so they each have eight or nine under them. These ten people know the stock everywhere. They are given supervision over certain parts of the stock. They are an aid to the section manager over these new people.

Some of them will master the toy department in perhaps three days.

Some of them we have in training for six or seven days. It is rather intensive training when you have a person there who knows the house and has been with the toy department for several years and who has been taught some of the principles of pedagogy, the science of teaching, the reiteration and the method of using parables and getting down into the depths of the mind of the person. This a buyer just hasn't got and in a store like ours he hasn't the time to give. I don't mean all buyers haven't it; some people are natural teachers and some are not. Buyers are practical-minded people when it comes to estimating what will sell, what won't sell, what you can make a profit on and what you can't. They are not so skillful and their daily work does not develop them in this deep-minded teaching which you get out of a trained pedagogue.

Mr. B. G. Hawkins (Jordan Marsh Company, Boston, Mass.): I take it from what you say about the captains that that is more or less teaching the salespeople on the job.

As you said this morning, it is very difficult for a buyer to find time to train on the job because he is out buying merchandise. Do you feel it would be a good thing throughout the year for us to strive to train more on the job rather than in the class room by having these team captains throughout the year?

Mr. Reyburn: We have divisions where allied or kindred merchandise or families of merchandise are grouped together. Each has a divisional merchandise manager and an assistant divisional merchandise manager.

If that division is located entirely on one floor, it has a service manager on that floor whose responsibility and authority is his own. A bureau like the fashion bureau has a representative in each one of those divisions, a representative who functions in that division alone. The training staff has a representative in each one of those divisions, and so has the advertising department. You have for that division a specialist in fashion, in advertising, in training, who is working right along with the merchandise line on their common problems. From the other partners in the six divisions the training staff gets information. You must remember that no good teacher can be a good teacher very long without constantly being a student. They must refresh in their minds every day what they have learned; but they must also find new illustrations in their practical experience and new illustrations in literature that they read on that subject so that every year their minds are refreshed and are better fitted for their work.

These assistants take to and bring back from the customer certain information. We don't teach from the top down, or from the bottom up. It goes both ways. It is like the circulatory system in our bodies, there are arteries that run out and veins that run back, and it takes both of them to maintain a healthy circulation. If you stop a vein there is trouble, if you stop an artery there is trouble. The portion of the body that they supply may die or wither away. That is the theory that we have in training.

Of course, the buyer is the manager of his or her department. In training we are only trying to supplement her as we supplemented her in the delivery department, as we supplemented her when we placed the bookkeeping and record making in one place, as we supplemented her when we had all the advertising done by specialists. Training does not differ from that. When you once sell that idea to your buyers, they all give it loyal support. They are constantly requisitioning the training department. Some buyers who have no ability at all for selling, who have no capacity at all for making money, are fine selectors and have fine cheerful selling fronts; you supplement them by making the department attractive to customers and by being enthusiastic to the salespeople; you can afford to supplement them on all these things where they are weak so that the departments will make money. That is all we are doing in training. The sponsor in each department is selected by the service manager, the merchandise manager and the training department. So we do have supervision on the job all the time.

Mr. F. J. Hardesty (C. H. Yeager Company, Akron, Ohio): There is a question that I should like to ask. In your shoe department if you need help with a purchaser, what do you do? Do you put some other clerk in or do you let the customer walk out? Is all your educational work done during store hours? If any is done out of store are they paid for it?

Mr. Reyburn: In lessons like these that I have told you about in executive training or perhaps in some of the style work and lessons on color and design and textiles, which may be done on the hours of the individual or the employee, we always give them supper in the building and they furnish the time. We don't pay them for the hour or hour and a half of their time used after supper.

In the old days before we stopped having special sales, we used to have big shoe sales. At times we could not get the help we needed. We used to have, in shoes (you couldn't do it in any other departments) a highly trained corps of clericals. The salesperson wrote the name and price and address of the customer and his number on the box of shoes and put it on the clerical's table. He did that quickly and then waited on another customer. That method relieved the salesperson of a good deal of clerical work and gave him time for selling.

When we needed a teacher, we depended on the section manager or gave him an assistant. And when the customer who was dissatisfied because she couldn't get the right kind of service, complained to that person, he often called another salesperson who served her. We did not have many customers who walked away who had complaints. The trained teacher helped us on that and the extra floor man helped us. You see, we had two good teachers of ideas right there to watch over that little crew of inexperienced new salespeople who did not know the shoe problem. We have not that problem now because we don't have those big sales.

Mr. M. C. Wood (Wicks Store, Chicago, Ill.): In a small store employing forty or fifty employees, would it be better to have group instruction or individual instruction?

Mr. Reyburn: By all means you need both. There is a lot to be gained in conference. If you get a group together just as we are doing now and questions are asked, you get into concrete problems that you never get into with the individual. We don't neglect the group advantages because we have a good individual contact. You need both.

Mr. M. Rosenthal (Atlanta, Ga.): I want to ask if you draw on the outside college graduates and business administrators? Do you use those in your business at all?

Mr. Reyburn: Yes. Let me quote from my talk to the class for executives:

> There are two great ways for training any student group, and both are necessary in educational work of a business organization. One is through theory, purely theoretical teaching, teaching that comes from textbooks. The other is the practical experience that one has in carrying through an undertaking. Here we try to combine both of these. The theory, you must remember, is nothing, after all, but an effort to describe practice or to propose a course of practice. If it is faulty, it is because human beings are so full of error. It may be faulty because the man describing the practice may not have been a close observer or a clear thinker; he may not have had a good vocabulary or he may not have had a good example to watch. It is always wise to question theory, but don't condemn theory, don't throw it out. Question it, try to understand it as a bit of evidence, try to get the facts even though the statements may be obscure.
>
> All of you will find in these lectures examples of our use of practical experience. You ought to be especially critical of that part of the teaching because you know so much about it, you have been through it. If you differ with the lecturer, you should indicate that in your notes. You should send in suggestions. I

think that every lecture that is given here should be taken seriously and listened to carefully. You should question every statement and try to decide if it is true. Accept it quickly if you think it is, hesitate if you think it is not. Where you hesitate, take the matter up with your teachers or with some member of the training staff and have a further discussion.

People with practically trained minds and theoretically trained minds are quite often suspicious of each other. Each has a just pride. I think that maybe we have done more to get the cooperation of the practically trained mind and the theoretically trained mind than any organization that I know of in business. We don't prefer the college or theoretically trained man and we don't prefer the practically trained man in collecting the material out of which we build this organization. We want both of them, and, after we get them, we want each to forget the class consciousness in which he indulges himself in appreciation of his particular training.

College trained men and women are often a little bit too proud of the fact that they have that certificate, and it is natural that they should be, because here in America from the time that we are little children somebody has been telling us how important it is to go to school and how big a reward we can have if we do go to school. That begins in the home and ends probably with the last teacher who lectures you just before you finish your course at college, and probably the person who delivers the final address to the class enlarges upon the value that training gives you. So many people come out of colleges thinking that they have something that will work by itself for his or her success. Of course it won't. It is just a tool to be used skillfully or otherwise. Many practically trained people I know, on the other hand, are just as egotistical and conceited about their training. I used to be that way myself. Not having the opportunity of going through college, I used to be very proud that I had dug out the knowledge that I needed without the aid of college training, but I realized, fortunately for me, a good many years ago that that was a foolish idea. Parents and friends minimize the disappointment of the ambitious youngster who finally realizes that he cannot finish school and must go to work, and argue about how fine it is to have a practical training, and they point to a host of men, both living and dead, who have achieved great success with little schooling. Such reasoning is helpful at the time, but often it is carried to the point of making one who succeeds without such schooling overproud, conceited and vain in his accomplishments and self-improvement.

Both of these classes of people have something to contribute, they can help each other tremendously. When you come here and become a part of this organization you want to realize that you are a member of the team, you are a part of a group, you want to hold up your end of the game. Do try to put in the place of that class consciousness that you may have had by making your way all by yourself or having earned a degree in college, the business group class consciousness. Having business group class consciousness means being able to say, "This is the place where I have my job, out of my job I am getting my living, I am making my contribution to society in various ways by means of my job. Through my job I am a member of this organization, of this team, I want to hold up my end of it. I must respect my team mates, I must help my team mates."

That is the kind of class consciousness that ought to be built up in all organizations.

That appeal is made by me and the head of our training department and is made by all executives to every college man we get, so that he is not the outsider that he used to be. We develop in him a great respect for the practically trained mind. It took us a long time to learn that, but we have used plain English on the subject and we have been fairly successful with the college men we have taken. We take three or four every year. They all want to go into the merchandise line. I won't let them. I tell them if they don't learn the drudgery of service work they never will be good, all round merchants. They have to be salesmen a while, they have to be section managers quite a while, and, out of the group of young section managers which we get, we select the most promising for the next position that is open in the merchandise line.

Mr. Hardesty: In your opinion, between what ages are women of most value as salespeople in department stores? If a woman forty or fifty years old finds herself in a certain position that she has to go to work and seeks employment in a department store, would your store give her any consideration provided she is a woman of ordinary education and no business experience at that age?

Mr. Reyburn: Of course, in modern times with the prosperity which this country enjoys you can't pick the kind of employee you want. If they seem likely prospects, we keep the names and addresses of the applicants we have had and communicate with them later if we can give them an opportunity.

A great many young girls in New York, and I presume elsewhere, apply to us. We take on some at fifteen or sixteen as messenger girls. It is really remarkable how smart some of those youngsters are. Some of them have had an environment that has encouraged self-confidence that some older women may never get. They might be clever salespeople at sixteen or seventeen after two years in these minor places. We try to select them carefully.

Those who stay with us after that age get more effective. Of course we hate to take on either a woman or man of forty-five. I think we hate to take on a man of forty-five more than we do a woman of forty-five. Just recently we gave a woman of forty-seven who had been in the comparison bureau only two and a half years and never had had any business experience before that, a job as buyer of a small department. It looks as though she is going to do very well. She took mental and physical examinations that showed good results. I came out of the banking business at forty-two.

Six or seven years ago we employed a man who was forty-five years old, and without department store experience, as an important executive. He was a great success as the chief financial officer and then became the head of a store where his record has been excellent. But you see, in such positions, his problems are with people, with markets of goods, with credit and money, and in all of these matters he had secured a good training as a bank executive. But I would not have taken a man at that age with such training as a merchandise manager, who needs a good deal of technical knowledge.

Mr. H. S. Fox (Mandel Brothers, Chicago, Ill.): Is the training in the executive course compulsory?

Mr. Reyburn: All attendance in the executive course is voluntary. I don't remember a college man who has not insisted on taking it. As they have just had four years and sometimes longer of drill in theory, the best critics we have of our presentation of these subjects are the college men. They ask ninety per cent of the questions. They are members of the same class as these eleven more ambitious and brighter employees who have not yet held an executive position. Their answers are more concise from an angle of academic review. The practically trained salespeople do give us many new ideas, and when they are thrown into the mill and the theoretically trained mind begins to work on them, the result is worth while. We do not find anything wrong with the idea of opening that executive training course to the opportunities of so many different types of trained minds. It seems to us a success.

Mr. M. H. Goodman (The Hub, Baltimore, Md.): How often do you do rating in both selling and non-selling, and do you believe in a price for a job?

Mr. Reyburn: We rate salespeople every month. The buyer and the section manager rate them separately. Each turns in a report and the two ratings are averaged. If there is a wide difference on any rating, the training staff through the teacher who is constantly in touch with that division will talk to the service manager on the floor, who, of course, is the chief service executive, and those two will make a third rating. If that third rating differs from both of the others, they may get both the buyer and the section manager together and see why their ratings differ. In that way the ratings may be brought together.

We believe there are about three methods for setting salaries. One method is to determine compensation by output. How much has the person contributed in actual money toward the success of the undertaking? That we consider first. The next method is determined by ability of the department or the store to make money. Maybe I should say there are four things, because we think of the department and we think of the store. If the whole enterprise is not making money, you cannot be as liberal in your compensation.

The fourth method is to gauge compensation by value of a service. We have buyers who get more than an executive of greater responsibility. I don't believe it is because they are making any bigger contribution to the organization. I don't think they are making as big a contribution, but the competition in the market for buyers is so intense that we lose them if we don't meet the price. We do not fix the compensation for a job. I have preached that ever since I have been in the business and it is awfully hard to get the old-fashioned expense man to see it. He would a good deal rather not have to argue with the salesperson. He would rather have compensation standardized. That is the greatest mistake we can make in retailing. It takes a little time to get your organization used to the fact that you are fixing compensations as liberally as you can, considering all the circumstances, and that you are going to consider these four factors all the time, and, lastly, that you are going to try to reward, with the greatest salary, that salesperson in the department who does the most to make money.

Mr. Goodman: That is for the selling end. Where our problem seems to be greatest is the non-selling end, such as office and other non-selling jobs where an employee comes in at a certain salary and, as time goes on, she or he may feel that a few dollars more should be forthcoming.

Mr. Reyburn: When you deal with figures and statements you are dealing in an exact science. Selling is still an art and probably always will be. So the quantity of work that is turned out in any scientific thing like bookkeeping can be gauged and you can get a good idea by paying for that quantity and setting up standards of quality. It is a good deal easier to make fixed salary provisions for fixed places in the accounting division than it is in the selling departments. That is done to some extent, but you lose your good people if you don't rate them and watch the individuals and reward the best ones. I try to avoid fixing standardized salaries in the accounting office.

There, again, the open market cuts a big figure in the wages you pay. There are so many people who have not quite the courage to be salespeople; they would rather have a clerical job. They can see their job stretching out before them for months, and they can form habits after a month or two, and they can function by habit. They don't have to think any more. That class of person seems to prefer to save thinking capacity for pleasures. Maybe they love to read, maybe they love art and want to go to the museums and use the imagination and the vision so that their minds may develop in those outside agencies. For that reason they want a simple job that they can manage by habit and there is no tax of thinking on their minds. You get a great many people in those clerical positions who shrink from trying to influence a customer or anyone else.

Mr. Tucker: I happened to have the pleasure one time of visiting your store and interviewing a great many of the rank and file there. Your talk this morning suggests to me more than ever that you are doing an excellent training work. I should like to ask you, or give you, rather, a problem. It happens that our firm is taking a broad step in reference to educational work. We are now spending a little over one per cent for educational work. I notice in your report that you are holding a great many meetings. In a three-store organization such as ours, we find it a little difficult to use the buyers as often as you probably can use them, considering their other duties and having three stores. We don't think, up to the present time we haven't thought, at least, that we can ask them to hold meetings more than once every other week. The buyer in our case is ex officio a member of the educational department.

The buyer is required to report at nine o'clock. These meetings are held from nine to nine-twenty, giving them time to get to their departments by nine-thirty. Do you think such a meeting, to say nothing about the average day's schedule, of all salespeople, supervised by the educational force and by the buyer, is sufficient to affect them to any great extent? Or would you suggest more frequent meetings in view of the work the buyer has to do? Do you think that we are reasonable in requiring the buyer, if he is in the city, to supervise these meetings?

Mr. Reyburn: We have weekly meetings in every department. They are convened by the sectional manager every Monday morning. The floor service manager and, probably, the divisional merchandise manager help. The advice of the training department is sought.

As soon as the group gathers, the buyer addresses them on merchandise problems. She talks about last week's sales results; she tells of the increased quota of the week, or the decrease. If it is a decrease because she did not get the merchandise she had expected and, therefore, did not get the advertising she expected, she just admits that she has gone behind and they must help her out. She tries to be a regular fellow, a part of the organization, and she tries to stimulate them to make the quota for the current week, plus the last week's quota loss, and more if they can get it.

After she has spoken four or five minutes, and has given the actual figures, the section manager talks about service problems. The meetings last fifteen or twenty minutes. There is a period of five or six minutes at the end, when salespeople may ask questions. We try, constantly, to get everybody to develop courage, even the newest employee, so that she will ask questions or make suggestions. It is awfully hard to do, but we are having better success than we used to. I think, by all means, the head of any group of business people who has to go out and do the difficult thing of meeting the public ought to have an enthusiastic sales meeting once a week or twice a month.

When the whole group is entirely within the four walls of the room the whole week long, doing chiefly mechanical work undisturbed by outside influences, we don't have to have those meetings. In a group of as many as forty to fifty, the head may do all his work by individual contacts, and have his group meetings perhaps once in six months or once a year. I have known many very successful office managers who may never have had a group meeting; but selling is an entirely different matter. In selling, you must stimulate the team spirit, the group spirit, and enthusiasm for the job if you want to do a good job.

Mr. Wood: Some employers believe that when employees are working with knowledge of the accomplishments of their departments they do much better. Therefore, is it well to have the clerks know what the business of the department is, or should it be kept from them?

Mr. Reyburn: The very foundation of our policy is to give honest, prompt, courteous and complete service to our customers.

When I first started I ran into that old bromide, "The customer is always right," which was not an attempt to carry out a service policy, but was an alibi for mistakes. That is when we evolved the other slogan, that to succeed, Lord and Taylor must give honest, prompt, courteous and complete service. With that foundation we try to have policies all the way through our store that any person we employ can loyally support without any sacrifice of self-respect. We don't have morale questions coming up among our employees and ourselves. Our only differences grow out of differences in judgment, which can always be compromised.

We generally do not give our results to departments; but to any bright youngsters who have the minds to figure and whose minds are in the process of development, we will give certain figures. We expect them to keep figures in confidence. If they don't it never hurts us very much, of course. The buyers have access to all records that I have; I keep no secrets from them.

I established a comparison bureau, and I believe there never had been one like it. All the comparison bureaus I had ever heard of were nothing but spy systems. I put up a self-respecting bureau, whose purpose was to seek the customer's viewpoint of our merchandise and service. Previously, any complaint that was made relating to service was reported to the buyer or section manager, and the matter ended there. There are many old bromides about how these complaints occurred. It is funny how our attitude changes. There is hardly a time when the old-fashioned section manager is right in explaining how a thing occurred. There is always a difference between the way he thinks it happened and the way it actually did happen.

We had a great deal of trouble establishing the bureau; but it is running very smoothly now. We have a Better Business Bureau in New York that does a great deal of shopping and their reports are sent to the comparison department. Copies go right to the heads of the department, and they no longer cause alarm but prove very useful.

As far as the sales quotas are concerned, we never give salespeople definite quotas. We no longer pay commissions, because they tend to destroy group spirit and willingness to build good will for us. Selfishness on the part of the salesperson under the commission system may make him a nuisance to the others in the department, and result in poor service to the customer. A most disorganized group might result instead of the solid team that we want. The quota that the buyer talks of in these departments' weekly meetings is the departmental quota. Individually she tries to stimulate each person to do better; but she always tries to get them to work together. She never says, "Mary, I believe you ought to do this because Sally did it." She says instead, "You used to do better. Why don't you try to beat that old record?" Such constructive talk doesn't put one individual in a contest with another individual in that little group in which you want the cooperative team spirit.

Mr. Block: A year ago, at the convention of the store managers, an educational director from Boston who was on the program cautioned us against determining the value of the salesperson on the basis of output. While I recognize that salespeople may do a great deal for creating good will by having a social position in the community, being cheerful, or exerting a very nice influence around about them, yet in the last analysis, wouldn't you say that you have to measure their value by their output?

Mr. Reyburn: You first must define output. Evidently the educational director did not consider everything that goes into output.

The real goal that any department store keeper should strive for is the building of net profits and good will. That is the great purpose that you ought to have. Volume is only a means to that end. Volume may be carrying the football right down to the line; but that doesn't score you anything. If you don't get it over you haven't made the goal. The other crowd may take you back several times before you reach it. Nothing is counted until you make the goal.

If you think of good will building along with total sales and have the whole picture of the performance before you when you determine the salary of a salesperson, then you pay on real output. A certain amount of this output may be in the volume of sales, and a certain amount of it may be in the sales that the suggestions of this salesperson causes the customer to make in other departments. It may be in any number of things. My contention is that individuals as important to us as salespeople ought to be watched, and we ought to know what they are doing. Then we know what their real output is and we pay them on output. It is not determined altogether by the total sales of the day. I imagine that was what that training director had in mind when she made the statement. The conception of "output" held in her organization is just a little bit too limited as compared with my use of the word.

Chairman Coyne: I think we have all thoroughly enjoyed Mr. Reyburn's generosity this morning. I think it is by far the best meeting that we have had since the convention opened. I am quite sure that we owe to Mr. Reyburn a very sincere vote of thanks for the time and effort put forth, so evident not only in the speech which he prepared for this morning's meeting, but also in the very explicit answers that he has given to all the questions asked this morning.

Mr. Reyburn, as Chairman of this meeting, I want to thank you.

VI

ORAL REPORTS

SECOND ANNUAL REPORT
THE COTTON-TEXTILE INSTITUTE, INC.[1]

WALKER D. HINES

Mr. Hines, President of the Cotton-textile Institute, Inc., presented this report at the annual meeting of the members, New York, Oct. 17, 1928.

The Cotton-Textile Institute is two years old. But it is only about a year and a half since its organization took definite shape. In this year and a half I believe the industry has made marked progress in learning to use the facilities which have been put at its disposal by or with the aid of the Institute.

The mills and their selling agents have given increasing attention to statistics of production and stocks and have been increasingly alert to the relationship of production to demand. More and more interest has been taken in the matter of accurate ascertainment of costs and in the vital question as to whether prices are properly related to cost. From what I have been told, there has been a greater degree of contact and exchange of views on basic facts and market conditions than ever before, not only among the mills but among the selling agents and between the mills and the selling agents.

If we measure this matter by years, we will realize that when we met a year ago the industry had more appreciation of the need for statistics and cost data and frequent conference than it had the year before that, and we also realize now that the industry shows at this time a greater appreciation of these things than it did last year. However, while we are thus justified in being encouraged, this should merely encourage us to further and persistent effort.

STATISTICS

For most of the groups in the industry, statistics are still compiled through The Association of Cotton Textile Merchants of New York, but the Institute has for more than a year been compiling statistics on production, stocks and unfilled orders for the Wide Sheetings Group, representing 95% of the looms, for the Carded Yarn Group, representing about 1,918,000 spindles, or 70% of all such spindles, and for several months has been compiling such statistics on pillow tubing for practically all except one of the important manufacturers, and on wide bed-spreads from about 70% of the total looms.

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[1] By permission of the author.

In addition, the Institute has continued to supply important print cloth statistics to be included in the compilation of the Association of Cotton Textile Merchants and has rendered some assistance in this direction as to narrow sheetings and osnaburgs. In addition to the semimonthly chambray reports compiled by the Association of Cotton Textile Merchants as to chambrays, the Institute for several months, at the request of its own Chambray Group, has been obtaining weekly reports of aggregate production and loom hours.

So far the Institute has undertaken in only one direction the compilation of statistics for a related branch of industry. With the cooperation of job printers and corporation printers, it has for over a year been compiling monthly reports as to the printing of cotton cloth and these reports now cover 74% of the cotton printing machines in the country. The Institute stands ready to perform a similar part in the compilation of statistics for other related branches of the general cotton textile industry as and when these branches deem such a step feasible and desirable.

In connection with the statistical work above outlined, the Institute, to the extent desired by specific groups, has made surveys showing the total looms or spindles in the respective groups.

But even more important than the continued compilation of these statistics is the increasing attention that has been paid to them. There has been increasing effort to measure the relationship of demand and production as indicated by these statistics so that the respective mills might find therein useful information in reaching their respective decisions as to their individual production programs.

In this connection some of our members have shown concern over the fact that statistics compiled either by the Association of Cotton Textile Merchants or by the Institute to some extent come to the attention of the public or of buyers and also by reason of the fact that such general or partial publicity takes place before the mills themselves see the figures and that knowledge of the excessive stocks tends to depress the market unduly to cost of production or below. The amount of interest in this matter justifies a further statement of the facts.

Aside from the Association of Cotton Textile Merchants monthly press releases showing aggregate production, stocks, etc., for the industry as a whole (with no separate figures shown for the different groups) and aside from the furnishing of some of the group reports to certain Government agencies, there has been no publicity given to these statistics by the Association or by the Institute. Buyers do not supply us with any of their figures, so naturally, neither the Association nor the Institute has placed any of these figures in the hands of buyers. If nevertheless any of this information has come to the attention of buyers, it has been in some unauthorized manner.

But my principal object in bringing up this matter is to point to the moral which I think is involved in the complaints sometimes offered as to the degree of publicity either general or partial which these statistics receive.

To my mind the most important significance which these complaints have is that they clearly recognize that excessive stocks are injurious to the industry because when they become known they have a depressing effect on the market. Now, if the knowledge of excessive stocks is injurious to the market, there are in theory two ways of correcting this condition.

One of these two ways is to continue to create the excessive stocks but to conceal the fact of their existence. I believe this idea is altogether impracticable. Before there were any statistics, information as to excessive stocks was prevalent in the market and was frequently greatly exaggerated, with the result that such form of information was as troublesome and probably more so than if the facts were precisely known. But further than that, information of this character was primarily known only to the buyers, so that the mills had much less information than the buyers. Under existing conditions, even if the statistics come to some extent to the attention of buyers, the mills at least know as much as the buyers know and the information is accurate instead of exaggerated. So I say that this first method of concealing the existence of excessive stocks so as to keep knowledge of the existence of those stocks from being embarrassing is not a practical method.

The other way of meeting the embarrassment of knowledge of excessive stocks is to avoid the creation of those stocks. The compilation of the statistics promotes this result. As the mills become more and more appreciative of the significance of the statistics and of the essentials of the soundest merchandising, they will increasingly avoid the creation of excessive stocks. So I emphasize again that the complaint that statistics showing excessive stocks are injurious if known is merely another form of conceding that excessive stocks are injurious and this leads inevitably to the conclusion that the true solution is to develop the industry's appreciation and practice of sound merchandising principles to the point where it will stop accumulating excessive stocks.

The experience of the past year has shown that any adjustment of production to demand so as to avoid the piling up of stocks must have as its starting point the possession by the mill of adequate statistics. So, as I view it, the question resolves itself to this: Shall we have statistics in order to guide the industry to the point where it will stop creating excessive stocks or shall we have the excessive stocks and abandon the statistics on the futile theory that thereby the knowledge of the excessive stocks can be concealed? I believe there is only one answer to that question and that is that we must go to the root of the trouble which is the accumulation of excessive stocks, and in order to do this we must have the statistics.

But there is another phase of this complaint which has real merit, and that is the complaint brought forward by some mills that they do not get the statistics with sufficient promptness because they receive their advices by mail which puts them at a disadvantage with people in New York who get the statistics or information of them much sooner. We must find some way to correct this valid complaint by sending the mills, to the extent that they desire it, telegraphic reports of the respective constructions in which they are interested, or reports by air mail.

COSTS

You have recently received the Institute's Cost Outline. This has been very generally commended as a constructive move on behalf of the industry. But it is going to do no good simply to put this matter on paper and have it commended. What is needed, where the principles set forth in this Outline are not applied in practice, is for the mills to re-examine their systems and squarely face and decide the question whether their systems are as sound as that indicated by our Outline and if any mill decides that its system is not as good as it should be, the next step is for that mill to modify its system or install a new system in order to put its cost finding method upon the soundest basis.

I propose to follow this matter up with the various mills. I am considering putting before them an inquiry requesting them to let me know what their present system is and wherein they think it is better than the system set forth in the Outline in instances where their system differs in principle from the Outline. Further than that, I propose to take up with the mills particularly the question of establishing a sound normal production for cost finding purposes for the next year. I wish to put before the mills in this inquiry such data as may be available as to production in recent years and to try to bring home to them the fact that production on anything like full capacity is in excess of what they can count on if they run their mills in accordance with true merchandising principles, and that their normal production for cost finding purposes for the future should in all probability be substantially revised so as to avoid their using a production in excess of what they are likely to have and thereby understating their costs.

I wish to resort to every other reasonable means, that would not put an undue burden on the mills, for hastening the day when we will have sound cost finding methods throughout the industry. When this day arrives it will be found that the methods will closely approximate uniformity and then a very important opportunity will open up for the arriving at average costs based on uniform methods which will be of immense value to the mills both from the merchandising and the manufacturing standpoints.

During the past year I believe the Institute has rendered substantial service to some of the groups by sending them from time to time statements of the manufacturing margins and by sending them, or discussing with them at group meetings, analytical studies of costs based on average results in typical low-cost mills. I hope to keep up both these forms of service.

What I wish to do is to keep this question alive and growing and I want to make it clear that what we have already done is merely a very modest beginning. We want to accomplish real progress and I very much hope I may have suggestions which will point out additional ways in which such progress can be made.

MEETINGS

In addition to having such tools as appropriate statistics and appropriate cost methods and cost data, we must also find methods of employing these tools. The principal method is that of conference, formal or informal, for the purpose of discussing the facts developed and exchanging views as to their market significance. Just as the intelligent use of a tool is even more important than the possession of the tool, so I regard conference among our members on matters of common interest as the thing of paramount importance in our work. I have sought to promote conferences in every practicable way.

To begin with, we have group meetings and meetings of our group advisory committees. We are confronted with the difficulty that some of our groups are made up of a great many members widely scattered and that it is not practicable to have very numerous and well attended group meetings. By degrees I believe this difficulty will be overcome, but in addition we must find further methods of facilitating and insuring conferences of sub-groups.

In addition to the formal meetings of the mills in the Institute groups, I have taken advantage of every reasonable opportunity to bring about conferences of a less formal character among mills interested in some particular subject.

Beyond that, I have become increasingly impressed with the advantage of frequent contact with the selling agents. Generally speaking, the selling agents are here in New York and can be far more easily conferred with than can the mills which are scattered over so many parts of the country. Each selling agent is presumably in constant communication with his mill. Therefore, the selling agent offers a very desirable medium for prompt exchange of views as to market facts and their significance and I hope more and more to be able to have the benefit of conferences of this character.

It is a part of the Institute's policy to maintain contact with other cotton textile associations. The Fine Cotton Goods Exchange which has its offices at New Bedford is a case in point. I explained in my report last year that the Institute had not desired to attempt to duplicate the work of that Exchange but had desired to work in cooperation with it. Inasmuch, however, as there are various fine goods mills which do not function through the Exchange, I have during the present year had several meetings of the fine goods mills in and out of the Exchange, acting in conjunction with President Raeburn of the Exchange. The Institute has organized a Fine Goods Advisory Committee in the Institute primarily for those mills which do not function through the Exchange, but upon the idea that our committee and the Exchange would keep in close contact. I have at all times given the Exchange the assurance of my earnest desire to put at its service any of the facilities the Institute possesses either in the matter of compiling statistics or promoting sound cost finding methods or otherwise.

Last spring I established a very agreeable personal contact with the Gaston County Textile Manufacturers' Association which is an association of combed yarn mills in and near Gaston County, North Carolina. As and when necessity arises, the Institute stands prepared to give its fullest cooperation to that association and any others of a similar character.

In addition to this we are cooperating with other associations representing the various aspects of the distribution of cotton goods, such as the Associations of Selling Agents, Finishers, Converters, Wholesalers, and Retailers. At present, in conjunction with them through the medium of our Distributors' Conference, investigation is being made as to the channels through which cotton goods are now distributed and as to the relative volumes moving through those different channels. We hope to have useful information along these lines in the near future and believe it will serve as a basis for further helpful discussion in the Distributors' Conference.

Adjustment of Production to Demand

One of the matters which has occupied a great deal of time during the past year of the officers of the Institute has been the problem of getting before the mills from time to time adequate information on which the respective mills could reach individual conclusions as to adjustment of their production to demand. The industry has passed through a difficult period, due largely to the serious fluctuations in cotton during the year 1927. In the early part of 1927 when cotton was very cheap, there developed a heavy demand which led to large production. But as the crop of 1927–28 began to mature, the price of cotton went much higher, the demand for cotton goods fell off, a generally hesitant attitude developed on the part of buyers, and the mills found themselves with a production running considerably beyond the demand and this condition prevailed for many months. I felt it was my duty to give the mills the fullest opportunities to study the facts and consider the market significance of these facts, and the result is that the mills acting individually and on their individual responsibility, have in many instances followed the very obvious indications of the facts and made substantial reduction from time to time in their production. I believe there is very general acceptance of the view that if the mills individually had not heeded the indications of the statistics and had continued to produce at the rate of production they employed last fall, the situation would have been far more unsatisfactory than it has been and the recovery would have been delayed a great deal longer.

New Uses

The Institute's work in encouraging new uses and extension of existing uses of cotton goods is making gratifying progress. I expect at an early date to send to the members a detailed summary of what our New Uses Section, which handles these matters, has been doing. I believe the members will be greatly interested and encouraged by this showing. For the moment I wish merely to refer by way of illustration to a few of the Institute's activities in the encouragement of the more extensive use of cotton goods.

Last June, after consultation with various leaders who agreed with our staff in the view that there was a revival of interest in cotton style goods, an extensive survey was undertaken which was carried forward through July and August and which led to the conclusion that more cotton dresses were being sold and worn, that cotton was gaining in fashion importance, and that 1929 would probably be a bigger cotton year. In the light of this information we have submitted to the mills interested in style goods the question whether they will join in raising a fund of not less than $250,000 for a Sales Promotional Campaign. The responses to this inquiry have been extremely satisfactory. Support has come in the most emphatic and cordial manner and already the fund in sight approximates $165,000. I hope that members who are interested in the matter will promptly give us their subscriptions.

There seems no question that this will be an extremely valuable move for the industry. From the beginning of the Institute the feeling has pervaded the membership that strong efforts should be made in the direction of advertising. It will be of very great value as an example for important groups of mills to join in this initial movement in this direction. It will point the way to continued effective work. Many other lines of industry have made a great deal of progress in cooperative work of this character and it is the appropriate time for our industry to make its initial steps in this direction. The soundness of our present plan is attested by the strong measure of support it has already received from practical mill executives.

I wish to stress the thought that whenever any such campaign is undertaken some definite basis for raising the funds must be decided upon. In the nature of things, it cannot be the basis which each mill would have individually and separately selected if it had been organizing the campaign. There may be many different ways of doing it, but some one way has to be decided upon. After careful consultation and discussion, we have reached the conclusion that the basis of assessment which we propose, which is at the rate of one-sixth of one per cent of the billings of style goods or gray goods which will become style goods, is the most practical and satisfactory. A few mills while showing emphatically their belief that this is the right time and manner to move, suggested some different form of assessment or some limitation as to the percentage of support it shall receive. I wish to urge that no mill, believing this is a good thing to do, defer its favorable decision because of the individual thought that some other method of apportionment would be somewhat better. Of course we would never get anywhere if we waited until we could meet precisely every diverging point of view. The industry needs this campaign and the mills making style goods will be benefited by it. We hope that, without delaying to seek to revise the precise basis, which would not be at all practicable, the mills seeing benefit in this movement will promptly signify their support and thus not only help themselves and the industry in this initial movement in this direction but give an impetus thereby to the Institute's earnest effort to promote the sales of cotton goods.

In considering this matter of sales promotion, it is well to mention as an example that the National Tent and Awning Association has just entered upon a three years' advertising campaign which it estimates will cost $1,000,000. Our New Uses Section has for a long time been in very close contact with this Association. We are all gratified that this move has been made, believing it will have great value to the cotton mills. There is a vast opportunity for extending the use of awnings because of both their decorative and their utilitarian advantages, and this means the extension of the use of cotton goods.

The New Uses Section has just been instrumental in promoting, with the support of a few interested mills and their selling houses, a Style Conference which has enlisted the cooperation and the hearty interest of the National Association of Cotton Dress Manufacturers. The conference took place on October 9th. There were over 70 dress models shown, making use of next spring's fabrics, to an attendance of about 500, largely made up of dress manufacturers and thus representing an enormous potential consumption. We hope to enlist the interest of other groups of mills to promote other and even larger style conferences, believing this is a highly valuable form of promotional work.

Last spring the Institute got up a very attractive pamphlet describing the qualities of cotton. This received very widespread distribution, many additional copies being called for, and the aggregate distribution approximated 20,000 copies. In the judgment of the Institute's staff, effort of this sort is distinctly worth while. I do not believe there is any fabric that has more appeal to the imagination than cotton. Whatever is well said about it along these lines seems to attract much attention and interest.

The Institute also prepared a carefully designed and executed pamphlet to show the advantage of longer bed sheets. This pamphlet received widespread favorable comment and led to repeated demands for additional copies. As a result, the Institute distributed 20,000 copies and then turned the matter over to the Wide Sheetings Group which authorized an assessment on its members to distribute an additional 20,000 copies of the large pamphlet and 500,000 copies of a reduced size pamphlet, the idea being that there was a great demand for the pamphlet for purposes of education of salesmen in retail establishments, and for distribution to ultimate consumers themselves and also for use of teachers of home economics. One of the agencies of distribution of these pamphlets may be mentioned as being of special interest. The laundry owners have a very strong association and they are greatly interested in promoting the use of cotton goods and on that account requested 3,000 copies of this pamphlet on bed sheets.

Montgomery Ward, Sears Roebuck, Ely Walker & Co., J. C. Penney & Co., and many other mail order houses, chain stores, and wholesale houses have from time to time made requests for our pamphlets running, in the aggregate, into thousands of copies.

The New Uses Section has been instrumental in increasing the use of cotton markers for traffic directions on roads, in developing a cotton membrane to be used instead of a fabric made from a competitive fibre in the construction of concrete roads, and in the development of another form of cotton fabrics for road making.

There are many other matters upon which the New Uses Section is actively at work and which will be described in the report which I am planning to send to our members at an early date. Among these may be mentioned cotton bags, cotton baling, draperies, cement waterproofing, aeronautical fabrics, canvas for sides and tops of trucks and baskets, canvas casters and truck wheels, belting, fabric for shoe soles and for shoe uppers, work clothing, and many others.

In the various activities looking toward a wider utilization of cotton fabrics, the Institute has had the benefit of constant cooperation of the United States Departments of Agriculture and Commerce. This type of work is furthermore coordinated with the activities of organizations representing growers and shippers of raw cotton and organizations representing every branch of manufacture, distribution and consumption.

In addition to this, the New Uses Section has devoted a great deal of attention to the matter of specifications for purchase of fabrics, and to questions of simplification and standardization of fabrics. All of these matters will be more clearly developed in the report to be sent to the members.

Exports

We are actively engaged in the study of the best ways to encourage larger exports of cotton goods. Several months ago we started an analysis of this matter, conferring with commission houses, other exporters, bankers, and others particularly interested in the problem. We shall make a report which we believe will be serviceable to the mills and their selling houses. One thing that is very clear is that a mill which desires to participate in a substantial way in the export business must, unless exceptionally large so as to have an adequate independent export establishment, identify itself with some form of organization which will be sufficiently large to do the export business on a large scale and in a permanent manner. It would seem that much of the disappointment which has come to many undertaking the export business has been due to the fact that it has been undertaken without adequate equipment for entering the matter upon a sufficiently large and permanent scale. To do this it may be necessary in many instances to work out some informal sort of affiliation among mills or their selling houses, or some more formal character of association, such as the formation of corporations for export business. It is also important for mills considering the export business to realize that they cannot count on any degree of reasonably permanent success in the business without being willing to stay in it after they get in it and to make such concessions from time to time as may be requisite to this end. I hope that our report on this subject can be sent to the mills in the course of a few weeks.

Consolidation

I strongly believe that a great deal can be accomplished for the welfare of the industry by the work of the Institute. I also believe that much can be accomplished through consolidations. There are far too many separately owned and operated units in the industry. Much would be accomplished in the direction of efficiency and soundness of merchandising practices if many of these units could be consolidated into single corporations. Naturally this is a work which must find its initiative outside the Institute but it is one of such importance to the industry that I am glad to take every opportunity to emphasize it.

Similar considerations apply to the consolidation of selling houses. I believe there is a strong conviction that in many instances distinctly useful results could be accomplished in this way and I believe our members would in a great many instances be thoroughly justified in encouraging their selling houses to give their careful attention to this important subject.

THE LOCOMOTIVE YARDSTICK [1]

A. W. BRUCE

Mr. Bruce, Designing Engineer, American Locomotive Company, delivered this address at the regular meeting of the Western Railway Club, Chicago, Nov. 21, 1927.

Mr. Bentley, Mr. President, Members of the Western Railway Club: The object of this paper is a brief presentation of railway motive power development from a design standpoint, beginning about the year 1900 to the present time, or a period during which many of us have been closely connected with railroad work.

I have no doubt that many of you saw the historical pageant presented at Baltimore during the first part of October, by the Baltimore & Ohio Railroad. This pageant covered practically the entire period of American railroad history, and was probably one of the most complete expositions of its kind ever shown. We are all of us greatly indebted to the Baltimore & Ohio for the opportunity of seeing, *in actual running order,* so many of the early locomotives, arranged in their proper chronological sequence. The Baltimore & Ohio is certainly to be congratulated, not only on the showing of the engines themselves but on the excellent manner in which the entire pageant was conducted. These various old timers represented periods *beyond the recollection* of any of us, and with which we were previously familiar only through historical means. Not only did the exhibit enable us to trace the development of locomotive design, step by step, but it also gave us an indication as to the progress of *manufacturing possibilities* by which, of course, commercial design and production are always limited. Fortunately, manufacturing limitations have not handicapped design *in our day* to anything like the conditions one hundred years ago. Can you imagine attempting to build one of our present sized boilers with wrought iron plates *2 or 3 ft. square?*

Right here I wish to call attention to the very *early recognition,* by locomotive builders, of the essential features in steam locomotives as we know them today. There were not very many *freak engines* shown in the Baltimore pageant. There were some, of course, arranged with gears, walking beams, vertical boilers, etc., but the remarkable part of the story is that locomotive builders so quickly decided on *horizontal type boilers,* arranged with *water leg fireboxes,* on *reciprocating pistons, directly connected to the driving wheels;* and, particularly, that they have retained these essential features up to the present time. We must give due honor to the sound judgment displayed by the builders of these early days, and to the tenacity with which they maintained their ideas.

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[1] By permission of the author. Reprinted from the official *Proceedings* of the Western Railway Club, November, 1927.

Another interesting point brought out by the pageant, and shown most forcibly by the sequence of the engines themselves, is the remarkable growth and importance of *locomotive auxiliaries* or as we call them, accessories, as applied to modern engines and *without which* the locomotive could scarcely function to anything like its maximum capacity. No set of drawings or photographs could illustrate this point so clearly.

What has been said about the locomotive applies equally to the *rolling stock, signal* and *safety devices* including *train control,* the road bed and, in fact, to the entire railroad system.

Coming back to the subject of this paper, most of us are familiar with locomotive equipment in general as used about 1900. *Electrification* had scarcely begun, although it was being considered for various special projects. It had at this time, however, little or no effect on steam locomotive design, which represented the *only available type* of motive power in the capacities required. We did have a very limited use of compressed air for *street car* and *mine service motors.* These were, however, of very limited importance.

Steam locomotives at this time were of very similar design, both as to wheel arrangement and equipment; *passenger engines* in general were either of the *4–4–0* or *4–6–0* type with cylinders from 18 x 24 to 20 x 26; *freight engines* were either of the *2–6–0, 4–6–0* or *2–8–0* type with cylinders from 19 x 26 to 22 x 30; steam pressures varied from 180 to 200 lb. per square inch; saturated steam, slide valves and Stephenson valve gear being in general use. Fireboxes were narrow, and either *between the frames* or over the frames and *between the drivers. Compounds* of various types were also in general use.

At this time our conception of locomotive *performance measurement* was rather vague, *tractive power and weight* constituting the usual standards without any particular attention being paid to *performance or economy,* as we know them today. If a railroad had some fairly successful 2–8–0 type engines in freight service and wished a little more power, the usual procedure was either to increase the *boiler pressure* 10 or 15 lb. or perhaps increase the *stroke* from 28 to 30 in. If there was any margin of weight *left over* on the new engines, the *boiler diameter* was probably increased a couple of inches. The locomotive designer proportioned his engines mainly from some previous design with a good reputation; he based his heating surface on an *arbitrary ratio* with cylinder volumes; he got as much grate area as he possibly could in the *narrow type* firebox; the weight limitation probably caused him as much anxiety then as it does today. As I said before, if there was any weight margin left over, he made the boiler a little larger on the theory that it could do no harm and in the hope that it might do some good.

Two-cylinder, *simple engines* at this time showed, under average performances, perhaps

From 1,000 to 1,500 indicated horsepower, maximum.

From 4 to 5 lb. coal consumption per indicated horsepower hour.

From 25 to 30 lb. steam per indicated horsepower hour.

A very rapid drop in tractive power-speed curve (or in sustained power).

At this time, the majority of the present large railroad systems in the United States had been completed, thus *permanently establishing* the *cross-section* limits in general use today, leaving the locomotive designer but two ways in which to increase the power of his engines: *first,* by an increase in length, and *second,* by an increase in weight. Fortunately, the permissible increase in length is very elastic and seems to be limited only by curvature of track in single units, although it does seem that we have reached about the maximum on some of our present Mallets. The increase in weight has been fairly rapid in so far as the *total weight* limit is concerned, but not nearly so great for the *individual axle* loading, which has not increased much over 10 to 15 per cent. Recently, a few roads have allowed rather heavy loading, but not greatly exceeding 70,000 lb. *Axle loading* will always be limited by the material of the rails themselves as well as by the ballast and bridge conditions. Critics of steam locomotive development would do well to consider what has already been accomplished since 1900, within practically the same clearance limitations, and which has resulted in our present *very compact* and *concentrated* designs.

We will now consider some of the more important changes which have taken place *as affecting design,* noting them in their approximate *chronological sequence.*

1. *From 1900 to perhaps 1905,* we saw the gradual abandonment of the various types of *compound* cylinders in favor of the two-cylinder *simple* arrangement for single-unit engines. The *compound* remained on Mallet types for which it was particularly adapted and has continued until the present time, although recently it is being superseded by the *four-cylinder simple* type.

This was not due to any particular error in the compound principle as applied to locomotives, but to the fact that fuel was *relatively cheap* and the *maintenance cost* of the compound engines overcame the difference in saving. Perhaps if present-day *superheaters* had been in use, we should have had another story. The fact remains, however, that the two-cylinder simple engine rapidly became universal, both in this country and in England, where fuel was *relatively cheap,* but the compound remained in Continental Europe where fuel was *far more expensive.*

2. With the constant increase in demand for more power, together with the use of poorer fuel, the *narrow firebox* was quickly superseded, just as soon as we found that *wide fireboxes* could be successfully applied. Some of us still remember our difficulties with the early designs of this type of box in obtaining *straight mud rings* with sufficient depth *of throat* sheet, especially with driving wheels *over 63 in.* in diameter. An excellent grade of fuel is probably the reason for the tenacity with which English builders stick to the older narrow type of firebox.

3. The introduction of the *two-wheel trailing truck* constituted, I believe, one of the most important *steps forward* in locomotive design because it immediately removed all restrictions from proper firebox design. It gave us a chance to use *straight mud rings,* with ample depth of throat; provided us with sufficient depth over the fire, with proper combustion volume; in fact, it gave us an elasticity in boiler design never before reached. It permitted us to use practically *any size boiler* desired or any *size driving wheel,* and to obtain a comparative increase in boiler capacity with relation to cylinders, with consequent *maintained capacity* never reached before. We also see a return of the combustion chamber with the use of the trailer truck; in fact, it would be almost impossible to build some of our present large size boilers without its use, on account of the abnormal lengths of tubes which would otherwise result.

4. Soon after the adoption of the trailer truck, we find the use of *outside valve gears* becoming general. We were forced to this owing to increased size of the eccentrics, straps, rockers, etc., which rendered

the parts inaccessible and weak for the work they had to do. The *outside valve gear* permits accessibility and lubrication, at the same time giving us a chance adequately to brace the frames together. This type of gear had long been in use in Continental Europe, but for some reason was slow in adoption both in this country and in England.

5. About this time, the necessity for much greater size units was felt, and the adoption of the *Mallet type* locomotive was introduced in this country. It had been used abroad for some little time, but in nothing like the size initially adopted here. To those of you who saw the Baltimore pageant, I am sure the original Baltimore & Ohio 0–6–6–0 type engine *built in 1904* was an item of interest. To all appearances, she seemed in just as good condition *today* as ever, and the fact that no serious change of any kind has been made on her speaks very well for her original design. *Certainly* we must honor those responsible for the introduction of this engine, as it took courage in 1903 to take the initial plunge. The Mallet type has been very successful in this country, far more so than in Europe where it was originally introduced. It has grown to tremendous size, but in general has retained all the *essential features* of the first engine. It has the possibility of high tractive power, but has heretofore been limited to comparatively slow speed because of its *compound feature;* hence, the most recent designs have included four simple cylinders, instead of two high-pressure and two low-pressure compound cylinders. Furthermore, the more recent experience in boiler design has permitted the use of *63-in. driving* wheels, in cases where the height limit is about *16 ft.,* instead of the 57-in. wheel which was considered maximum size for years. The fact that the front engine is not *connected rigidly* to the rest of the machine, will always give us *maintenance difficulties,* if this type of engine is operated at too high speed.

6. Ranking in importance along with the introduction of the trailer truck comes the application of the present *fire tube type superheater* in locomotive boilers. The successful superheater design now almost universally applied has done as much toward increasing the *capacity* and *economy* of steam locomotives as any other one thing. As you all know, its introduction was made with very little difficulty and no great change has been made in its design from the beginning.

7. *About 1913,* Mr. F. J. Cole, Chief Consulting Engineer of the American Locomotive Company, introduced one of the most *important changes* in the method used for locomotive *proportional design* which has yet been brought forward. It was the *first rational* step toward the rating of locomotives, and the deciding on locomotive ratios before the

building of the actual machine. It has remained *unchanged* and is almost universally used at this time. It consists, as many of you know, in the rating of the cylinder power on a maximum indicated *horsepower* basis; and the rating of the boiler on an *evaporation* basis obtained from *arbitrary* evaporation figures for both the *firebox* and the *tubes,* together with an arbitrary maximum figure for coal consumption per *square foot of grate area.*

8. About this time, much more general recognition was given to the control of *lateral motion* on curves; heretofore, about all that was considered necessary was that the engine passed through the given curve without derailment. You will, many of you, remember the trouble experienced with *frame breakage,* especially on 4–6–0 engines between the cylinders and the first drivers; much of this could have been obviated if we had known then what we know today about truck resistance and the *guiding of engines.* In providing guiding power on trucks, truck wheel flange wear is to be expected and is a sign that the truck is doing what we *expect it to do.* It is much *cheaper* to turn truck wheels than driving wheels.

9. Locomotives were now becoming of such size that it was hard for one man to handle *sufficient coal.* It was logical then that *mechanical stokers* began to appear, to pass through a period of development, and have now assumed their proper place. It would be impossible to produce anything like present horsepower figures *continuously* without this device. Its adoption has also permitted possibilities of using much poorer grade of fuel than could otherwise be handled.

10. While affecting chiefly maintenance, I think we should mention the increasing use of *integral cast-steel* details; such as, *truck* frames and also complete *tender* frames, thereby avoiding use of bolts and rivets which are continually a source of trouble.

11. Locomotive *trailer* truck, and *tender* truck *boosters* were introduced comparatively recently in order to provide an increase in locomotive capacity in starting and to prevent stalling. In other words, this device was *very well named* and should be used *accordingly* for best results.

12. We find further developments in boiler accessories which have resulted commercially in *feed water heaters,* and in *firebox syphons,* both of which are becoming quite generally used.

13. As I have said before, the increase in permissible *driving axle* load has been comparatively *slow* and in order to get the very maximum amount of tractive power out of a given weight on drivers, which may be done with a more even *starting torque,* two modifications in lo-

comotive practice have appeared. One is the *limited cut-off two-cylinder* engine, which has, necessarily, the added advantage of steam economy due to expansion when used *continuously* and in *slow-speed* operation. The other is the *three-cylinder principle* which carries with it the additional advantages of six exhausts instead of four per revolution, also lower individual piston thrust, the possible division of power between *two axles* and the possibility of all the economy obtained through the limited cut-off feature which may be applied *equally well* on three- as on two-cylinder engines.

14. While all the previous developments have been directly concerned with the locomotive itself, the railroads had about this time started a development of their own which has probably done as much in the direction of economy as any other one item; and that is the adoption of *longer continuous* locomotive runs, which were originally brought about by the necessity for fast movement of perishable freight at high speeds, and which was later extended to passenger service. Indirectly, this change has affected locomotive design by the necessity for *sustained* boiler power, for ample lubrication and also for the development of larger tenders which has forced the use of six-wheel trucks.

15. At the present time, we are gradually adopting the use of *higher boiler pressure*. This gives us an economy in fuel and a quick, smart engine; keeps the cylinders and reciprocating weights within reasonable limits, but does, of course, require more careful boiler construction, suitable boiler fittings and pipe connections.

16. Following the increase in boiler pressure, we are developing gradually the *water-tube type of firebox;* the older stayed plate firebox is apparently only suitable for pressures not exceeding approximately 300 lb. per square inch. *Water-tube fireboxes* are in use in this country up to 400 lb. pressure and abroad in excess of 800 lb. Just what will be the final limit of pressure or of design is *not yet known*.

17. European development has gone so far as to include not only *poppet valve* cylinders but also *turbine* locomotives with *condensers* and with either *electric or gear* drive. This type of machine is still in the experimental stage and I see no hope for its introduction in this country for general use until the *first cost,* total *weight* per horsepower, *mechanical difficulties* and *maintenance cost* have been greatly reduced, together with the obtaining of an *assured reliability* in service.

18. Some of the detail improvements now being adopted are worthy of attention. Among these are:

The use of *outside bearing* engine trucks, both two and four wheel.

The general use of *cast-steel* cylinders.

The improvement of main *driving box* design to take care of high piston thrust.

The additional attention given to *lubrication* for long runs and also the general use of *mechanical feed* cylinder lubrication.

General adoption of *front end* throttles.

Better arrangement of *cab* fittings.

Introduction of *four-wheel* radial trailing trucks.

In the meantime, we have seen the gradual adoption of *electrification* for terminal use, for which it is particularly adapted; also, for use on certain *relatively short* portions of main-line track on a few roads where the *density* of traffic warrants its installation, with its high *initial investment.* These cases are relatively few, and the great bulk of main-line transportation is still, and apparently will be for some time to come, handled by steam locomotives.

We also have with us now a newcomer in transportation, and that is the *Diesel locomotive.* So far, its use has been restricted to slow-speed work in which the tractive power *is high* but the horsepower development *low.* It has the great advantage of using *low-cost fuel* with *minimum standby losses,* and it is well adapted for certain kinds of *branch-line, street,* and *car-ferry* service, especially in isolated localities; but until its *first cost* and *weight* per horsepower have been materially decreased, and until some means is found for obtaining *much larger* individual units within our clearance diagram, it will have very little influence on main-line transportation.

The result of all these developments, both in design and in operating conditions, has been a unit of steam motive power having extremely high general efficiency, together with high *sustained horsepower.* It follows then, that the introduction of a *given* number of *up-to-date* steam locomotives in main-line service will automatically retire a *greater* number of engines, previously in use, to service on lines of *secondary* importance. This is a condition with which many of you are familiar, as it very quickly results in a surplus of *obsolete power* which we *cannot afford* to operate, in view of the economies obtainable through the operation of modern equipment.

The constantly increasing use of motor *trucks,* motor *busses* and motor *rail cars,* together with the *discontinuance* of many branch lines, tends *largely to remove* the only available chance which we had to obtain further mileage from this *obsolete class* of power.

When we consider, however, that a railroad is *nothing more* than a *commercial manufacturing plant,* whose only product is *transportation,* and in which the locomotive is the only *direct* revenue producing unit, it immediately becomes apparent that we must apply the *same rule* for economical production *to the railroad* that we would apply to any commercial plant. We all know that the success of present-day industry has been due to *large production* at *low unit cost*. The sooner we learn to apply this to railroad operation, and the sooner we make up our minds *to scrap obsolete power* and to substitute *new power of modern design,* the sooner we can hope to pay *suitable dividends* on our initial investment.

I realize perfectly the *enormous amount* of capital represented in motive-power equipment. What other manufacturing industry, however, could be carried on *competitively,* using *continuously* machines 20 to 25 years old in the *manufacture* of its product?

There is also the danger that in retiring *first* line power to *secondary* lines that we will have an uneconomic operating unit. *Locomotives,* like any other machine, must be *designed* for their particular service in order to produce the best returns.

The importance of doing just this thing becomes more obvious when we realize that we are still operating many engines in service which average little better in *performance* than the figures previously mentioned in this paper; while from a *strictly modern* locomotive having the same number of drivers, we might reasonably expect to obtain results something like the following:

3,000 to 4,500 or even 5,000 i. hp., maximum.
Coal consumption, 2 to 3 lb. per indicated horsepower hour.
Steam consumption 17 to 18 lb. per indicated horsepower hour.
Sustained maximum power at high speed.

We will now show on the screen a *representative development* of both passenger and freight service locomotive as suited to any *low-grade road,* together with the characteristics of representative early and late types, all of which may be considered as *still in service* and which show what can be accomplished *anywhere* under similar service conditions. We will first show the *passenger* power.

Slide 1. This slide shows the highest type *4–6–0 fast passenger* locomotives in use about 1900 having 80-in. wheels with 200 lb. boiler pressure but giving only 23,800 lb. tractive power with relatively small *boilers* and *narrow fireboxes.* Note change from slide to piston valves.

Slide 2. Shows one of the first high-speed passenger 2–6–2 *types* with *trailer truck* and *wide firebox* but retaining Stephenson gear. Better *boiler conditions* than 4–6–0 but having only slightly increased tractive power and weight. The lower photo shows the maximum development of the 2–6–2 type in passenger service with much *larger* *boiler,* increased tractive power and weight together with *Walschaert gear.*

Slide 3. This slide shows the first *4–6–2 development* to succeed the previous 2–6–2 with still *larger boiler,* and the better guiding qualities at high speed of the *four-wheel* engine truck, but with very little more tractive power and still using *saturated steam.* The lower photo shows the final development of this *particular design,* equipped with *superheater,* modified cylinder proportions and trailer truck *booster.*

Slide 4. We now have a new and larger design of 4–6–2 having a *much larger boiler,* a marked increase in tractive power and weight, equipped with modern *accessories,* which represents about the maximum capacity obtainable in this wheel arrangement, within permissible axle limitation. The lower photo presents the last word in locomotive capacity for *high-speed* passenger locomotives obtainable today with three-coupled axles. While there is a very considerable increase in tractive power, its outstanding feature is the *maintained boiler power.*

Slide 5. This slide shows the *characteristics* of the first 4–6–0 engines shown, and is typical of any narrow firebox saturated steam engine. The heavy lines show the usual *tractive power* and *indicated* horsepower cylinder *curves.* The first *dotted* lines *below* show the *reduction* due to lack of sufficient *boiler* capacity, and the second or lower *dotted* lines, the further *reduction* due to the restricted *grate area* of the narrow firebox, based on the usual assumed maximum rate of combustion per square foot of grate area.

Slide 6. We see next the answer to all of our development since 1900. As before, the *heavy* lines represent the usual *tractive* power and *indicated horsepower* cylinder *curves* with which most of us are familiar. The *dotted* lines show how much by *actual test* we have been able to *exceed* the old standards through the working range of high-speed passenger service.

This increase is wholly due to the greater steaming *capacity* made possible through the application of *larger boiler,* mechanical *stokers,* improved *superheater,* feed water *heater* and other accessories, the additional weight of which is chiefly absorbed by the *four-wheel* trailing truck. This slide speaks for itself.

Slide 7. This slide shows comparative diagrams of the *first 4–6–2* shown together with the *final 4–6–4* type and we may assume both types are *still in service.* Note the comparatively *small* increase in weight on *drivers* as compared with the increase in *total weight* and *tractive power.*

Slide 8. We now see the comparative *characteristic* tractive power and indicated horsepower *curves* for these two engines; the *wide gap* between the two represents just one thing—*power output* at speed.

Slide 9. The *final answer* is shown on this slide: the 4–6–2 type handles 8 cars on a long fast run; the 4–6–4 type is *conservatively* shown as handling 15 cars under similar conditions. Wherever *sustained power* is required at *high speeds,* we should do well to consider the possibilities of *the 4–6–4 type.* The development of *freight power* has followed along much the same lines as the passenger with *equally* satisfactory results.

Slide 10. Slide 10 shows, in the upper view, one of the largest of the earlier *2–8–0 types* arranged with Stephenson gear, piston valves and the broken mud ring so commonly found in connection with the *first* wide firebox designs with 63-in. wheels. Directly below we see the same engine developed to its *final stage* for this wheel arrangement. While it might have been possible to go a little further with this type, its limitations were too obvious to warrant the expense.

Slide 11. Consequently, we see next, in the upper view, a *typical 2–8–2* engine with which we are all familiar, and which has been probably the most successful *wheel arrangement* ever used for all-around general freight service, although it is beginning already to fall back at this time, because of insufficient *boiler capacity.* The lower view shows, as we might anticipate, the growth in size before final abandonment for *more powerful* types.

Slide 12. I wish to call *particular attention* to this slide, showing what is probably one of the best *wheel arrangements* for *high sustained power* that has so far been generally adopted. With wheel diameter to suit, it is readily adapted to either *freight* (as shown) or to *passenger* service. Where exceptional power is required, a *four-wheel* trailing truck may be used equally well. The upper view shows one of the first successful designs of this type built for *fast through freight* service. The lower view shows one of the *latest* and most successful developments in this type, one which has *made history* on the road over which it operates.

Slide 13. I wish to show here the relative *tender capacities* between the last *two* 4–8–2 engines just shown. Both were designed for the same division. The success of the large tender on the later engine *was so marked* that the first lot was almost immediately increased also; this together with application of *mechanical stokers* and *feed water heaters* greatly increased the *earning capacity* of these engines. Larger tenders offer the *simplest* way to avoid coal and water stops and consequent delays.

Slide 14. This slide shows what we have accomplished with *freight power* through its working range. The *heavy lines* show the usual tractive power and indicated horsepower cylinder *curves,* while the *dotted* lines show by *actual test* how much we have been able *to exceed* them. As in the case of the passenger engines already shown, this increase is wholly due to *greater steaming* capacity.

Slide 15. We see here *diagrams* of eight-coupled freight engines. The upper *2–8–2* type is representative of hundreds of Mikado engines *operating daily* over roads in the United States. The lower *4–8–2* type is representative of many engines also *operating daily* but with *greatly different results.* Note what has been obtained for an increase of *13 per cent* on drivers.

Slide 16. This slide shows the comparative *characteristics* of tractive power and indicated horsepower for these two engines; the difference again represents *capacity* only.

Slide 17. The *final result* in the case of freight engines is measured in *ton miles* instead of in the *number of cars* per train as for passenger engines. We see now a comparison of *average* gross ton miles over the *same division* which decisively justifies the use of the *4–8–2* type engine wherever *speed limitations* permit. The advantages of steaming *capacity, large driving wheel* with increased *tank* capacity, are obvious.

With the older engines we were faced with many *limitations* which have since been removed, chief of which was the amount of coal that it was *humanly possible* for one man to handle *continuously* and the further general inability of the *locomotive boiler* to maintain sufficient steam supply to the cylinders. Thanks to the *mechanical stoker,* to improved *superheaters* and other devices, we are now able to lift our *tractive power-speed curve,* so as to very closely approximate the theoretical *hyperbola of continuous power* output. With the reduction of locomotive design to a much more definite basis, together with the increase in demand for more rapid and continuous transportation, with also the constantly *rising* cost of *fuel,* operating *labor* and *maintenance* items, we face the necessity of providing an entirely *new yardstick* for reference, instead of the well-known *two-foot rule* which has served us *so long* and, in some cases, *so well.* Locomotives in the past, if they met their maximum *tractive power* requirements in starting and came somewhere near meeting their *weight limitations,* were, in general, considered to have satisfactorily met the *two-foot* rule requirement.

The modern locomotive is still subject to the two-foot rule requirement of tractive power for *starting trains.* Beyond this point, however, we apply today the yardstick of *indicated horsepower* which is the true measure of *work* performed by any prime mover, no matter what form it may take. This same *horsepower* unit appears again under the name of *gross ton miles per hour* which is doubtless equally familiar to many of you, as is also the corresponding measure of locomotive efficiency—*coal per thousand gross ton miles per hour.*

The difference in the two standards of measurement is perfectly simple: the older tractive power standard is wholly *indefinite,* as it makes no allowance for *time* or *distance;* the modern standard is accurate and definite, in that it defines a certain amount of *work* to be done within a certain *definite period of time.* You will recollect that the definition of the term *horsepower* is *a unit of measurement for the rate of doing work.* The importance of measuring locomotives by this standard will appear from the following actual returns covering two types of engines on a well-known western road.

Because of profile limitations, this road had been using 2880 Mallets and had considered them very satisfactory until receipt of some three-cylinder *4–12–2* types of about the same tractive power.

Slide 18. This slide shows in the upper view the 2880 Mallet, which was considered one of the most successful designs in its class, over an undulative profile, until *operating speeds* increased to a point beyond its limit. The lower view shows a three-cylinder 4–12–2 designed to handle the *same tonnage* at much *higher speed.* While this engine has a 30 ft. 8 in. driving wheel base, axles 1 and 6 are arranged with *lateral* motion device, enabling it to pass road curves without difficulty. This is probably the largest existing *single unit* engine to be found anywhere.

In actual service on 1½ per cent grades, the 4–12–2 has handled the *same trains* as the Mallet, at *higher speeds* and with *less coal;* on 0.8 per cent grades the 4–12–2 shows 80 per cent more *ton miles per hour* on about 50 per cent of the Mallet *fuel consumption* per 1,000 gross ton miles. These results speak for themselves.

Slide 19. Another more recent striking example is shown here. A well-known eastern road received, in 1916, for use over a difficult undulating division, some of the *largest and most powerful* 2–10–2 type engines built up to that date and which were continued in service until the receipt, in 1927, of some very *remarkable 2–8–4 engines,* which, equipped with trailer-truck boosters, have approximately the same *tractive power,* in spite of the fact that the driving wheels are *70- instead of 63-in.* diameter.

With a very *slight* increase in axle load, these 2–8–4 engines have more *heating surface* and *grate area* than the 2–10–2 type and are fully equipped with modern *accessories,* including large capacity tenders. These engines have extremely large sized boilers, which act as power supply *reservoirs* in overcoming service fluctuating, to the extent that steam failures are *unknown.* To those of you who have attempted to keep the gage pointer 1 or 2 lb. under popping, this may sound almost too good to be true. It is, however, made possible on this type by absorbing the extra weight of the large boiler on the four-wheel trailing truck.

That these engines are daily justifying the judgment of the railway company in their selection is apparent from the following:

Operating over an undulating division, a little over a hundred miles in length, with 1.14 per cent ruling grade, averaging for each type five trips east and five trips west bound, preliminary tests have shown results in favor of 2–8–4 type, as follows:

An increase in actual tonnage of 10 per cent.
A saving in running time of 35 per cent.
A saving in coal of 30 per cent for 1,000 gross ton miles.

Locomotive performance, in so far as coal consumption per thousand gross ton miles per hour, varies, of course, with the *profile* of the road and the *continuity* with which the traffic is handled. We have locomotives, however, in continuous daily operation on a well-known river grade road using less than *50 lb. of coal* per thousand gross ton miles per hour, which shows what can be done.

In this connection, I wish to impress upon you the utmost importance of *continuous train movement.* Locomotives are a *paying investment* only when in motion and are a *deficit* while standing. Every effort should be made to avoid congestion in the *terminal yards* and also in the *side-track delays* on the road. A very considerable outlay can well be made in many instances for *car inspection* at terminals so as to prevent consequent *delays* in cutting out on the road for avoidable *car failures. Standby losses* of all kinds, both for fuel and operating crews, should be avoided. A *continuous* run from terminal to terminal at the *highest* average speed consistent with *safety* will bring us the greatest *return* on the investment.

Having set for ourselves a certain *definite* standard of measurement, both individually and comparatively, and having the assurance that we may now predict very closely beforehand the performance which may be expected from our designs, let us see just what type of machine we have developed as representing the best practice of today.

Operating experience has shown that, for the comparatively high speeds and high axle loadings common at this time, both for freight and passenger service, *four-coupled* axles are, in general, sufficient to take care of *two* simple cylinders without excessive wear and tear. We have many *five-coupled* axle engines in service at conservative speeds, but, with a few exceptions, their use is less common today than it was 10 years ago, owing to the relatively high *cylinder thrust* and *reciprocating weights* required for five axles. A good many roads have felt that for *five* axles connected together, it was safer to go to *three* cylinders in order to obtain reduced thrust and reciprocating weights, especially as this arrangement permits very readily a division of power between *two* axles. With *six-coupled* axles there are very few of us who would attempt to maintain the *two-cylinder* principle, and, in fact, it would be *almost impossible* to hold the enormous thrusts and to counterbalance the wheels.

The general design has then taken the form of a *two-cylinder simple* engine for road service, in general, with either *three- or four-coupled* axles (most passenger engines still have three axles) with either two- or four-wheel leading and trailer trucks, and for the higher powers, *three-cylinder* engines with either *five- or six-coupled* axles and provided with suitable *lateral motion* features to take care of curvature; for extremely high-powered engines the *four-cylinder simple* Mallet is again receiving attention and several remarkable designs have recently been built with a 2882 wheel arrangement.

Slide 20. This slide shows, in the upper view, a four-cylinder simple Mallet of probably very near maximum size that can be obtained with a *15 ft. 0 in.* height limit. The lower view shows what can be done with a height of *16 ft. 0 in.* and greater axle loading. Note the extreme compactness of both designs.

There is one other point to which I wish to call your particular attention as marking a distinct step *forward* in the design of fast freight service engines, and, that is the *increase* in the size of the driving wheel from *63 to 69* in. There is no other *single step,* with the possible exception of increasing the relative boiler *capacity,* that has done so much to increase the *available ton miles* per hour and to *decrease* the locomotive *maintenance,* because of the decreased number of wheel revolutions, decreased piston speed and better counterbalance conditions. You will readily see that the 69-in. wheel adapts itself for use with four-coupled axles without difficulty, with either two- or four-wheel trucks to suit conditions. In all probability, the demand for increased boiler *capacity* will see an increase in the use of the *four-wheel* trailer truck; certainly our experience so far has justified this prediction. The engines so arranged have ample steaming *capacity,* good *riding* qualities and, at the same time, *reduce* the rail *stresses* on the track by decreasing the distance between individual axles.

The *4–8–2* type with 73-in. or larger diameter driving wheels has become practically a standard type with many of you for heavy passenger service where more than three axles are required. Has it ever occurred to you that this *same engine,* but with 69-in. wheels, would make one of the best freight engines obtainable for the through fast freight service that you are now operating on practically *passenger train schedules,* also giving you, at the same time, maximum *interchangeable* details throughout?

I do not mean by this that all engines *necessarily* should have 69-in. wheels. There are still many roads on which 63-in. wheels are of ample size, but whenever the speeds *justify* it, the larger wheel is a *paying investment* and should be considered as such.

I should like also to recall to you the fact that we have always found in the past that a very good ratio of tractive power to adhesion was *1 : 4.* It may be possible under certain conditions to slightly reduce this, but is there anything *more aggravating* to a train crew than a slippery engine, with a heavy train and bad weather conditions? Are not many of the advantages *claimed* for the slight increase in initial tractive power to be found *on paper only?* I might say right here, however, that this difficulty can be *overcome* and the *advantages* of the large cylinder and boiler capacity, *at speed,* retained if we can get our engine crews to use the *throttle* with the same facility that they have for the *reverse lever.*

The modern throttle lever is *accessible* and easily operated; a little practice will indicate the proper starting *reduction,* after which it can be pulled wide open as usual. This is general Continental practice and might well be considered here, especially as our present smokebox throttles are located so close to the cylinders as to permit *close regulation.*

Another thing affecting locomotive operation under low-adhesive conditions is the *quality* of *sand* used. Instead of being just *sand,* it develops that a *sharp gritty material* is much preferable to one having the characteristics of pulverized *clay.* While this may have been known previously, little attention has been given this subject. Recently, we find *progressive* motive-power executives giving the matter serious study. It is one of the *smaller things* that helps maximum *tonnage* over the grade.

I have endeavored to emphasize the fact that the steam locomotive of today is the *chief direct revenue producing machine* in a very highly organized factory, operating *commercially* under *keen competition* and producing one product only—*transportation*—and that while the locomotive is *idle,* transportation *ceases.* We should then give the most careful consideration to the design of the locomotive itself and to the choosing of the various labor- and fuel-saving devices with which it is to be equipped. We expect the locomotive to operate *over long distances* and under all conditions. Its operating cost must then be figured on this *same basis* and not on an *ideal* performance, possible only for *short test periods.* It is not difficult to obtain *low* coal and water rates under *fixed* limits. It is quite another thing, however, to maintain these low rates in *daily operation* under the widely *fluctuating* loads and speeds met in actual service, for which reason *conservative* ratios in boiler and firebox design, as well as in steam distribution, often prove the most economical.

Slide 21. We see here a train chart (time—distance) covering a typical freight-train movement (picked at random) over a division a little more than one hundred miles in length. The *total* lapse of time is shown by the *upper line* in which the offsets show the *delays* occurring at these particular points. It will be seen that *7* hours' *total* was required to make this run or an average speed of *15* miles per hour over the entire division.

The *dotted* line shows the actual *running* time of *4½* hours or an average speed over the entire division of *25* miles per hour or an increase of *66⅔* percent over the elapsed time average.

It will be seen further that out of the running time, *1 hour* was taken up in *drifting* (down grade) so that the *lower line* shows the time during which the engine was actually *working* or, in other words, the time during which coal was being *productively burned.* Note that this time was *3½* hours only or just *one-half* the total elapsed time over the division.

Some delays are necessarily unavoidable in many instances and, while the case shown is perhaps excessive, it is still I think *representative* of *general* freight movement today. *This slide speaks for itself.* Just so long as we operate under similar conditions to these shown, we must design conservatively and avoid possibilities of undue standby losses—how much coal was burned during these 3½ *non-productive* hours?

Remember, the operating cost is figured over the *entire year* and not over the *test hill* only. We must, then, carefully analyze our *operating conditions, proportion* our locomotive to best meet these conditions and then decide as to what labor- and fuel-saving devices we can supply *to advantage,* bearing in mind that *any* change from normal design, as well as the addition of *any* accessories, *means additional first cost and weight.* To what extent, then, will these added costs and weights justify themselves at the end *of the year,* and to what extent might they have been better used in increasing the *size of the boiler* itself which still remains the controlling factor in the *power output?*

It is customary for the railroads, at the present time, to ask for, and to obtain, delivery on entirely new designs of locomotives beginning from *90 to 120* days after receipt of order. How many of you realize that the number of drawings required for a complete engine and tender design has increased from *353* (or 815 sq. ft.) in 1907 to about *1,109* (or 2,268 sq. ft.) in 1927 and that the number of patterns required has increased from *380* in 1907 to about *534* in 1927? (The above *does not* include drawings and patterns for *dies, templates,* etc., which number about *60 to 70* for each; *nor* does it include the detail drawings for any of the *accessories* which, as you know, are *very numerous* in some cases.)

Assuming an order of from 25 to 50 locomotives at an approximate cost of *$100,000 each,* which is not at all unusual at the present time, an idea is given as to the size of the *initial investment* on which the railway company expects to make its returns.

In what *other lines* of industry is an *equal* expenditure made with *so short* a time allotted for *engineering* development? I know of no better way in which the railroads of this country could express their *confidence* in the ability and *cooperation* of the *locomotive builders.*

And for your very kind and patient attention I thank you. (Prolonged applause.)

IMPENDING CHANGES IN OUR USE OF FUELS[1]

ARTHUR D. LITTLE

Dr. Little, of Arthur D. Little, Inc., Cambridge, Mass., gave this lecture May, 1927, before the meeting of the Engineering Foundation, New York.

The Tempo of Progress

When one observes a growing plant for an hour it seems a fixed and static thing. Such progressive change as may be taking place proceeds too slowly to make impression. When, however, the development, which may have taken months for its fulfillment, is crowded into the few minutes required to run off a motion-picture reel, we gain an altogether new appreciation of the dynamic power and driving force behind that evolution in which green shoots are followed by stem and branches, leaves, bursting buds, and flowers in full bloom.

It is much the same when we survey a specific industry. We may realize that changes are in progress, but the general impression we receive is one of established equilibrium. We need, therefore, to review quickly the development which has already taken place, in order that we may gain a true appreciation of the forces which urge it forward and that we may sense the direction of its trend.

Historical Review

Through the long course of centuries and down to times relatively very recent, wood was practically the only fuel used. Charcoal followed naturally as a derivative of wood. In the days of King Edward the First it was a capital offense to burn coal in London, and in 1306 a man was executed for the crime. The criminality slowly diminished in degree, but in 1550 Queen Elizabeth prohibited the burning of coal in London during the Parliamentary season for fear that "the health of the Knights of the Shire might suffer during their abode in the Metropolis." A little more than one hundred years ago it was as iniquitous, and perhaps more dangerous, to sell coal in Philadelphia than to sell liquor there to-day.

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[1] By permission of the author, the Engineering Foundation, New York, and Little, Brown, and Company, Publishers, Boston. Reprinted from "Handwriting on the Wall," published by Little, Brown, and Company, and from *Publication* Number 14 of the Engineering Foundation.

In 1804 the British Admiralty declared it their duty "to discourage the employment of steam vessels as . . . the introduction of steam vessels was calculated to strike a fatal blow to the naval supremacy of England."

In 1619 the growing scarcity of wood in England led Dudley to attempt the substitution of coal for charcoal in his blast furnace. The charcoal iron-masters drove him out of Worcester county. He set up another furnace at Hascobridge. A riot was organized and the furnace wrecked. In 1660 Dudley was still at work, undaunted, but unsuccessful.

Fortune dealt more generously with Abraham Darby, although with much deliberation. His use of coke in place of charcoal began about 1730, and in December, 1756, his furnace was declared to be "at the top pinnacle of prosperity, twenty to twenty-two tons a week and sold off as soon as made at profit enough."

At a time not later than 1688, and possibly somewhat earlier, the Rev. John Clayton heated coal in a retort and obtained gas and tar. He demonstrated that the gas could be burned and that it could be collected and stored. His results were duly published in a memoir, and forgotten.

The world moved slowly in those days. It was one hundred and fourteen years later that William Murdoch, in 1802, lighted his house at Redruth, Cornwall, with gas and developed the equipment upon which the gas industry was founded. It then waited thirty-five years for the gas producer and until 1874 for Lowe's first successful water-gas plant.

The first American gas company was organized in Baltimore in 1819, where to-day they consume more gas in five years than they did in the first century of their manufacture.

In 1840 practically no coal was mined in the United States. In 1860 our production was only a few million tons. In 1918 production reached a peak of about 740 million tons. It is now, under the competition of fuel oil and because of more efficient use, down to about 600 million tons.

In 1860 the annual per capita consumption of petroleum in the country was .016 barrel. We are now producing nearly 2½ million barrels a week and importing oil at that.

During the period from 1815 to 1914 the white population of the world increased about three-fold, but the production of mineral fuels —coal, oil, and natural gas—increased seventy-five-fold, and by far the largest proportion of this increase was in our own country.

THE INCREASING DEMAND FOR ENERGY

The pressure behind this amazing acceleration in our production and use of fuels is, of course, that insistent and constantly increasing demand for energy, which sharply differentiates modern civilization from those which have preceded it. Two pounds of coal will develop as much energy as a man at heavy labor for a day. The industrial status of a country is, therefore, largely determined by the supply of energy available to the individual worker, and nowhere is that supply comparable to that afforded him in the United States.

In 1770, except for a few small water powers, some wind mills and sailing vessels, and here and there in England a Newcomen engine for pumping water from the mines, the total power available to the world was that of human beings and draft animals. There were no railroads, no canals. The roads were bad, and the traveler was at the mercy of the highwayman. It cost as much to transport a ton of goods ten miles as it costs to-day to send it fifty times as far. Industry was cramped and necessarily localized; its markets were restricted, and its rewards were meagre.

The work which maintains our present social structure is not, however, the work of the man with a hoe, it is the work of the farm tractor and the harvester; not that of the Chinese transport coolie, but of the locomotive engineer with a hundred loaded freight cars behind him; not the back-breaking effort of blowing a forge by hand, but the manual control of turbo-compressors forcing the fires of the blast furnace. It is, in short, work on the grand scale, which draws upon the material sources of energy to the utmost extent to which we are capable of utilizing them, while human energy supplies the controlling, regulating, and steering agency.

COAL OUR CHIEF SOURCE OF ENERGY

Since coal must remain for generations our chief energy resource, the line of progress parallels that which leads to the better utilization of coal. At the recent notable International Conference on Bituminous Coal, President Baker, of Carnegie Institute of Technology, said, "In less than a generation the present methods of shipping coal to be burned in its raw state under boilers hundreds of miles from the mines will appear to have been primitive and rudely unscientific."

That there is sound basis for President Baker's prophecy is evidenced by the fact that the problem of converting coal to products of higher form value is already the subject of extensive and costly experimentation in many countries, including, of course, our own. The general problem has many aspects and is being attacked from many angles.

The smoke screen, which enshrouds our cities, defiles our buildings, damages their contents, depresses our spirits, deprives us of the wholesome actinic rays of sunlight, and is a constant menace to health in other ways. Though general opinion is to the contrary, domestic heaters, including those of apartment houses, are responsible for the nuisance in larger measure than the furnaces of industrial plants. Our supply of anthracite is, relatively, very limited, and we have the authority of John Hays Hammond for the statement that in the anthracite mines the natural conditions are steadily getting harder. The average depth of workings has increased 77 per cent during the last generation, and the average thickness of the beds is barely half what it once was. The consequent high price of anthracite and the tendency of the miners to take a vacation as winter comes upon us have stimulated much earnest endeavor to find a substitute for anthracite through the conversion of soft coal to a smokeless fuel generally satisfactory to the householder.

Better Use of Coal

Foremost among these activities are the numerous processes for the so-called low-temperature carbonization of coal. Some two hundred of such processes have been listed, but it is doubtful if ten per cent of that number have been operated on anything approaching the commercial scale. Their distinguishing characteristic is that the coal is carbonized at temperatures rarely exceeding and often below 1100° Fahrenheit. As a result, there are obtained a moderate volume of gas of high heating power and valuable, in place of gas oil, for the enrichment of blue water gas, an excellent smokeless fuel in the form of semi-coke, and from twenty to forty gallons of a thin tar per ton of coal. This tar is markedly different from ordinary coal tar, and has, instead, much of the character of petroleum. It may be cracked to yield 22 per cent of motor fuel of high anti-knock quality.

Time and the limits of your patience permit only casual reference to a few representative processes. That of Professor S. W. Parr, of the

University of Illinois, is the culmination of twenty-five years' study of the fundamental conditions involved in low-temperature carbonization. His process operates in two stages: a conditioning stage, in which the coal in a closed, rotating drum is quickly brought to within 25–50° of the temperature at which it becomes pasty, and a coking stage conducted in a vertical retort preheated to 750° C. Partly by reason of exothermic reactions within the coal the heat strikes to the center of the mass in 10–30 minutes, with production of a dense, strong semi-coke from cheap Illinois screenings.

The method developed by McIntire, at Fairmont, West Virginia, from the old Carbocoal process has a rather exceptional record of performance in that some 25,000 tons of coal have been processed. Its purpose is essentially that of making an artificial anthracite in the form of a briquetted smokeless fuel. It involves an initial low-temperature carbonization with mechanical stirring of the plastic mass of hot coal. This stage of the process yields from 2000 pounds of coal, 1480 pounds of semi-coke, 31 gallons of thin, light tar, and 2 gallons of light oil, together with about 3000 cubic feet of gas of 950 B.t.u.[1] The semi-coke is then briquetted with a binder of by-product pitch and reheated, at higher temperature, with further yield of 2000 cubic feet of 450 B.t.u. gas and 8 gallons of heavy tar. The finished briquettes, containing 8–12 per cent of volatile, are dense and smokeless.

The Green-Laucks process of the Old Ben Coal Corporation, as installed at Waukegan, Illinois, passes a thin stream of coal upward by a screw within a vertical retort, 18 feet high and 3 feet in diameter, set in a furnace, the screw being heated through the shaft. The product of this pilot plant is said to be strong, dense, and smokeless. A commercial plant with retorts 9 feet in diameter is under construction, and if it functions well mechanically it would seem likely to do so commercially in view of the low initial value of the Illinois screenings used as raw material.

The product of the McEwen-Runge process, developed at the Lakeside plant of Milwaukee Electric Railway & Light Company, is intended for use in powdered coal equipment. It, again, is a two-stage process, in which the coal is first heated at medium temperature to destroy its coking property and then carbonized in a second retort. The two retorts, each 40 feet high and 6 feet 9 inches in diameter, are insulated, and one is superimposed on the other. Pulverized coal is fed into the upper retort, which discharges into a hopper, from which it is delivered to the second retort. The charge is heated by hot gases introduced into the retorts, each of which is provided with two combustion chambers. The gases enter at the bottom of the retorts and rise countercurrent to the descending coal. There is little loss of volatile material from the upper retort, and the gases are exhausted into the atmosphere. The gases from the second or carbonizing retort are removed to storage by a gas exhauster and amount to 3750 cubic feet of 850 B.t.u gas per ton of coal.

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[1] British thermal units.

Few details are available regarding the one-ton retort designed by Harold Stevens and operating at the plant of Detroit Edison Company, but it is stated that results have been so satisfactory that a 24-ton plant is about to be installed and operated in conjunction with the equipment of a small gas company.

In addition to these and other processes under development in this country, much serious work is being done on low-temperature carbonization in England and Germany, and it is claimed that one or two processes at least—the Coalite process in England and notably the K.S.G. process in Germany—are on a commercial basis. The latter is operating at Essen on a considerable scale, and a plant to handle 500 tons of raw coal a day is now under construction in South Wales.

The special type of retort developed for the K.S.G. process consists of a double revolving drum, the outer shell of which is 10 feet in diameter and 76 feet long. The inner shell is of the same length, but only 5 feet 8 inches in diameter. The retort is slightly inclined and surrounded by brick work. The coal is fed into the inner drum at its lower end and as the retort slowly revolves is gradually raised by cleats to the upper end, where it is delivered to the outer shell, within which it passes downward to the lower end and is there discharged as dense, hard lumps. The external retort is heated by producer gas, whereas the inner one receives only such heat as is transmitted through the coal in the outer drum. The coal in process thus receives a preliminary low-temperature treatment before being subjected to the higher temperature, which, together with the rotary motion, forms it into lumps of the character described.

Tests on American coals with 33–36 per cent volatile yielded semicoke 1412 pounds; tar, 30.6 gallons; gas, 3470 cubic feet testing 772 B.t.u., and 3.3 gallons of motor spirit, per ton treated.

Coal Economics

The economics of the situation must, of course, finally control the development of any method of processing coal. The products must be worth more than the raw coal plus the cost of processing, though the energy content of the total products can never equal that of the original coal. We can look for profit only through the change in form value.

In England, where homes are heated by open grate fires, in which low-priced, raw bituminous coal is burned, the householder, who may protest against the smoke nuisance created by his neighbors, is slow to abate his own proportion of that nuisance if it involves paying more for semi-coke than he is charged for coal.

The problem of low-temperature carbonization in England is, therefore, the difficult one of operating at such low cost and of deriving such values from by-products that the semi-coke can be sold at substantially the price of the coal from which it is made, despite a shrinkage of 25 per cent or more in weight in passing from coal to smokeless fuel.

In our own country the situation is much more favorable, for the product of processing bituminous coal is intended to enter into competition with high-priced anthracite.

Progress and Opportunity

There is a widespread and growing interest in the low-temperature carbonization of coal and increasing activity in the development of methods. These are progressively improving as the reasons for earlier failures are recognized. It is doubtful, however, if there is yet in this country a process that can be said to have established definitely a successful commercial status. It seems, nevertheless, altogether probable that within a short time certain of the processes now in the developmental stage will take an assured and important place in fuel technology.

Raw coal must continue to be for a long time to come the most economical fuel for large power stations except in situations that permit the tying together of low-temperature plants, gas works, and steam central stations, with delivery of semi-coke as boiler fuel and high B.t.u. gas for gas enrichment.

The broad opportunity for low-temperature carbonization is through the conversion of the immense available amount of cheap slack and screenings to high-grade domestic fuel.

Beneficiation of New England Coals

The fuel problem in New England has been for years acute, despite the fact that there are great stores of coal in Massachusetts and Rhode

Island. It is true that some people think it functions better as material for crucibles than on the grate, and the wise and lamented Professor Shaler did not advertise it favorably when he remarked that the safest place to be in at the conclusion of the Day of Judgment was a Rhode Island coal mine. Nevertheless, even the diamond will burn if you go about it properly, and so will these New England coals. They are very high in ash, but that ash can be reduced to 7 or 8 per cent. They are very low in volatile, but the volatile content can be raised. Both operations are in fact now going on.

We have all, from time to time, in recent years, heard much of the Trent process. You recall that in that process high-ash coal is subjected to wet grinding and thereafter agitated in a large volume of water, to which a moderate proportion of fuel oil has been added. The oil selectively wets the coal and gathers its particles into little balls not unlike caviar in appearance. The ash, for the most part, remains with the water and is washed away. The product of the deashing process is a putty-like amalgam containing about 8 per cent water, 16 per cent oil, and the balance as low-ash coal.

For various reasons this amalgam has failed to find acceptance as fuel for either domestic or power purposes. Quite recently, however, the process has been further extended, and the results obtained are of the most serious interest to New England and to the operators of anthracite mines.

In the process as now applied to Rhode Island coal and anthracite culm the amalgam is extruded and cut to briquette size. The briquettes are then baked under regulated temperature conditions, which permit the recovery of the major portion of the oil. The finished briquettes are equal, if not superior, to anthracite as a domestic fuel. They are of uniform size, dense, very hard, low in ash, and with about 8 per cent volatile. They ignite readily, burn freely without smoke, and hold the fire for a long period with maintenance of their shape.

The speed with which fuel developments are proceeding at this time and the dangers of prophecy are strikingly evident when these results are viewed in the light of the statement, made only last November, at the International Conference on Bituminous Coal, by so distinguished an authority as Marius R. Campbell.

In his paper on "Our Coal Supply" Mr. Campbell said regarding the super-anthracite fields of southern Massachusetts and Rhode Island:

"In this field, coal has been mined from time to time at Portsmouth and Providence, in Rhode Island, and at Mansfield, in Massachusetts, but none of the operations were long lived and it is doubtful if the material can ever be utilized as a fuel."

Liquid Fuels from Coal

Of less immediate practical importance in this country, though of greater interest in its far-reaching implications, is the process of Bergius for the conversion of coal to liquid fuels. In the plant at Mannheim pulverized coal, made into a paste with oil, is heated to about 450 degrees Centigrade in an atmosphere of hydrogen under a pressure of 1800 pounds or more to the square inch. The coal is thereby largely converted into oil and tar, from which motor fuel, Diesel oils, lubricants, and heavy fuel oil are recovered. The crude yields and the character of the products are largely influenced by the nature of the coal used and vary from 93 to 140 gallons per ton of dry, ash-free coal.

As a measure of security in a country liable to have its supply of oil cut off in time of war the process is one of significant value. In the United States, with crude oil selling for as low as $1.00 a barrel, it has the allurement of a long-term endowment policy. The possibility of its application to the treatment of heavy petroleum residues for the production of motor spirit and light oil suggests, however, an earlier development here.

Research and Tradition in the Gas Industry

J. E. Bullard has recently pointed out that "the real competition in which the gas industry is involved is that between research and tradition. The gas industry has followed tradition rather closely. Its competing industries have turned toward research and are willing to scrap all tradition." He continues, "Unless real research work is done and on a scale commensurate to that being done by competing industries, then the gas industry can take it for granted that it will have to relinquish more and more of its profitable business."

It is a timely warning, for the gas industry is entering upon a period of great expansion, in which the highest technical and scientific knowledge will be essential for the solution of the problems and the improvement of the opportunities which are before it.

The most significant of the developments immediately facing the industry are perhaps house heating and a greatly extended industrial use of gas. In case of both gas offers the simplest and most reliable of the present systems of automatic heating. It can be burned at high efficiencies. The distribution of gas in underground mains is unaffected by weather or traffic conditions, and the service is among the most dependable of the utilities. Use of gas involves the consumer in no carrying charges. He pays for his fuel after it has been used. Under present conditions the householder pays more, but he receives more in comfort and convenience. In many industrial operations, however, the greater economy of gas is readily demonstrable.

The use of a gas flame to cool the refrigerator sounds paradoxical, but it may be recalled that wherever a motor-compressor unit is producing refrigeration a coal pile is somewhere being consumed to develop the electrical energy which drives the motor. Refrigeration by the direct use of gas thus eliminates a long chain of intermediate equipment. The required energy is furnished in much cheaper form; the apparatus involves neither motor, moving parts, nor lubrication. It makes small demand for service. Despite its present subordinate position in the art, the future of household refrigeration would seem to belong to the gas-fired unit.

Since gas has the highest form value of any type of fuel, a problem of outstanding importance to the gas industry is that of developing a thoroughly commercial method for the complete gasification of coal on the grand scale. The problem is apparently nearer to solution in England than with us. There some two hundred Tully plants are operating, but they are mostly of small capacity, making less than 500,000 cubic feet per day. In this process the coal is first carbonized in a vertical retort, set over a water-gas generator, into which the coke descends. The retort is heated externally by the blow gas and internally heated by the water gas generated during the "up runs." The yield of mixed or double gas per ton of coal varies from 40,000 to 53,000 cubic feet of 350 B.t.u.

Among those methods of complete gasification which have come into less general use mention should be made of the Kreisa system operating in Germany and Austria. It somewhat resembles the Tully process, but yields a gas of 450 B.t.u., provides for the continuous removal of ash, and, in place of a boiler for generating steam, utilizes a metal checker-work, which, heated by the gases of the blow period, and thereafter sprayed with water, provides, in balanced proportion, the steam required for the run.

In 1925 there were sold in the United States 422 trillion cubic feet of manufactured gas, whereas only 112 trillion, if one can apply the word "only" to figures of such astronomical dimensions, were sold in 1905, an increase of 376 per cent in twenty years. With the industry facing a five-fold further increase in the next decade or two, factors similar to those which have determined the integration of the production and distribution of electricity may be expected to bring about a like development in the manufacture and distribution of gas.

Our smaller municipal gas companies are too often antiquated organizations, without vision, and far from realizing, either in their present practice, or in their preparation for the future, the possibilities of the industry. In many cases their communities could be more effectively and cheaply served through high-pressure transmission lines from large central gas plants. Natural gas is now piped 300 miles, and a projected line from the Texas Panhandle to Kansas City will be 450 miles in length. It is designed to deliver 36½ billion cubic feet a year at a maximum pressure of 450 pounds.

In the Chicago district, along the Atlantic seaboard, and at a few points elsewhere, there exist great markets for manufactured gas within much shorter distances from the mines. There are few locations where adequate condensing water for super-power plants is available at the mine, but super-gas works are not subject to this limitation.

Gas Developments Abroad

We shall do well, therefore, to watch the development of projects now under serious consideration in Germany for concentrating in the Ruhr the entire gas industry of the country and effecting distribution through high-pressure lines. We may find much food for thought in the following statement of the ambitious program of the Coal Utilization Company of Essen:

"Contrary to press statements that the new company is not concerned with the chemistry of coal, I must say here that its field is unlimited. It will use mechanical, electrical and chemical methods to arrive at its object. All processes which use water, air and coal as raw materials belong to the activities of this company. Coal which is otherwise unsalable must be changed to other forms of energy or to other materials for which there is a market. It is natural that the new company cannot begin at once all the methods of work. Its activities will be divided into those which can be immediately applied and those which must be left for the future. In the first class belong the distant supply of gas, district heating, the application of coal distillation, gasification and firing of powdered coal. For the future there are those modern chemical processes which have coal for their raw material but which require further scientific study and which before technical application is possible must be submitted to extensive investigation."

The modern chemical processes referred to are presumably those which Bergius, Fischer, and Patart described at the Pittsburgh Coal Conference. Mention has already been made of the first of these. That of Fischer produces gaseous, liquid, and solid hydrocarbons from water gas, while Patart disclosed a method of making acids, alcohols, and numerous other series of important organic compounds from the same product of the gas works.

Coke-oven gas is already being distributed over a radius of 62.5 miles from the Ruhr. They believe that the problem of leakage over much longer lines under higher pressures "is entirely solved by processes for welding the gas lines."

In the Rhine-Westphalia coal district it is proposed to build a gas-collecting system which will extend from Hamborn to Hamm, into which the several coke-oven plants will pump their gas. This pipe line will follow the water courses through the coal district. The purification of the gas will be made at the end of the collecting system, where there will be located the gas holders and compressing station. Four sections of the main pipe lines have been projected from the Ruhr district:

1. Through Bremen and Hamburg to Lubeck and Kiel.
2. Through Hanover and Magdeburg to Berlin and Stettin.
3. Through Kassel and Thüringen to Saxony and later through Lower and Upper Silesia and the Saxon mining district.
4. A line following the Rhine to Hesse, Baden, Wurtemberg, and Bavaria.

It is claimed that the transmission of gas in great volume by pipe line is much less than the transport of coal by rail to local gas works, and in view of other savings it is planned to have one basic price for gas for the whole country. The distant gas transmission will, it is believed, be subject to the same economic laws as high-tension electric transmission. It would be intermingled with and unite the communal and private concerns, local distribution and long-distance transmission.

In connection with this general plan much importance is attached to the possibility of utilizing cheap oxygen in water-gas sets, which would thereby operate continuously with a mixture of oxygen and steam. Our own studies indicate that such a generator might easily use 25 per cent less fuel for a given output and have twice the capacity from a given size. Such operation would permit the use of a solid hearth with slag removed in liquid form, thereby saving grate troubles and clinkering and making available low grades of coal with a low fusing ash.

Research a Corrective for Waste

After generations of reckless waste in our utilization of the fuel resources of our country we are beginning vaguely to recognize the urge of that hoarding instinct, which, it has been said, marks the dawning of economic consciousness in the progress of civilization. We have only to contemplate the situation into which opportunist development has brought us, as regards our coal, our oil, our natural gas, and our forests, to realize that most of the wastes, delays, and difficulties which characterize that situation are due simply to lack of planning years in advance, and to our failure to embody in some coördinated general plan those lines of action which are well recognized by experts as essential to our proper development as an industrial nation.

No agency is better qualified to assist effectively in the development of such a plan or in the organization of those lines of research which must accompany this development than The Engineering Foundation, through which may be focused the integrated experience of our great national engineering societies.

INTERNATIONAL ASPECTS OF INDUSTRIAL MARKETING[1]

NELSON S. GREENSFELDER

Mr. Greensfelder, Advertising Manager of the Hercules Powder Company, delivered this address before the meeting of executives in industry concerned especially in problems of industrial marketing, held in conjunction with the United States Chamber of Commerce, Washington, D. C., May 10, 1929.

The announced purpose of this Conference is to aid in developing a broader and more general understanding of the problems affecting industrial selling and advertising as contrasted with consumer marketing; to exchange experiences, particularly in foreign markets; and to review the world's industrial development and its bearing on the sales of both raw and manufactured materials and capital equipment, to industry at home and abroad.

The inspiration for the meeting dates back to an exchange of telegrams in November, 1928, between the National Industrial Advertisers' Association and Herbert Hoover, who was then President-Elect, just prior to his leaving the United States on a tour of Latin America.

This telegram informed Mr. Hoover that we appreciated and endorsed the purpose of his visit to Latin America and that we had appointed a Committee to guide us in helping to foster a complete and friendly understanding between the industries of the United States and those in Latin America and other countries. By his immediate expression of appreciation of our efforts, Mr. Hoover encouraged us to follow up our gesture with some constructive work.

The Association of National Advertisers, through its Industrial Advertisers Committee, has actively cooperated and its Managing Director and staff have handled much of the work involved in preparing for this Conference. The two Associations mentioned are coordinating all of their industrial marketing research to avoid duplication of effort.

Mr. Frederick M. Feiker, Managing Director of the Associated Business Papers, is Chairman of the Committee which, in conjunction with the Department of Commerce officials, planned the Conference.

On behalf of both Associations, I wish to express appreciation to this

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Committee and to the men in the Department of Commerce, who have given much time and thought in preparing the program and in handling other arrangements.

Distinction between Industrial and Consumer Selling

We are considering, today, the problems pertaining to industrial marketing which differ somewhat from those of consumer selling. The things which determine the nature of the industrial product are often decided by the buyer; whereas, with the home-consumer market, the maker tends to determine these things and undertakes to make his public accept them. Manufacturers of industrial products usually have direct contact with their trade; whereas, for home-consumed products, contact with the buying market is usually indirect. Exceptions to this are those companies that sell by mail or by house-to-house methods.

Producers' goods are bought by manufacturers for use in their own business, and the buying considerations are efficiency and economy. Consumers' goods are bought by wholesalers and retailers to sell for a profit to the consumer, who buys them usually to satisfy some desire or need for better living.

Industrial advertising is, as a rule, addressed to a much smaller audience than is reached by advertising of consumers' goods. Many magazines, with a circulation less than ten thousand, cover important markets for industrial products as thoroughly as the household journals, with their millions of circulation, do in their field. Often, however, more specialized knowledge and research are required to prepare an effective advertisement for a business paper in which a page may cost only $100 than are necessary to write an equally effective advertisement for a $10,000 page in a nationally circulated popular magazine; and frequently the volume of sales for a product bought by an industry reached through business papers exceeds the sales potentialities of some products which are advertised to the general public. Even though the financial investment in a single industrial advertisement may be comparatively low, the degree of intelligence with which it is prepared should be high. I hope that one result of this meeting will be to stimulate greater effort and cooperation between all concerned, in raising the standards of industrial advertising, domestic and foreign.

The Need for a National Census of Industrial Distribution

Hundreds of millions of dollars are being spent profitably each year on research in the production phases of business. The discoveries of research chemists are changing old industries and creating new ones almost over night. In our business, I find that it is not safe to print large catalog additions, because of the new products and derivatives and the new uses for them which our research chemists are constantly discovering. Similar revolutions are in progress in other industries.

In the field of distribution, however, research is not yet so prevalent. Many progressive companies have realized the need for market research and are doing it in a well-organized and far-seeing manner, but industry as a whole is just beginning to perceive that market research should be made an integral element of business.

From the standpoint of many firms engaged in industrial marketing, one of the most helpful undertakings recently initiated by the Department of Commerce is the proposed Census of Industrial Distribution. As the Department of Commerce has pointed out, the average American manufacturer is operating with almost maximum efficiency from a production standpoint, because he has the necessary statistical services to guide him. In the field of distribution, however, there is often a lack of essential information.

At the request of the National Industrial Advertisers' Association, the Department of Commerce recently made a trial survey in Cleveland, a city with widely diversified industries, to ascertain the possibility and advisability of obtaining data on inter-industry distribution in the 1930 National Census of Distribution. The members of this Association are grateful to the Bureau of Foreign and Domestic Commerce for the earnest attention which they gave to our request and the helpful investigation they are conducting.

The data collected in the Cleveland survey pertained to the following classified items: (1) raw materials (products which have not passed through a process of manufacture); (2) semifinished goods (materials other than raw materials purchased for further processing, or fabrication into the products manufactured by the institution being enumerated); (3) mill supplies (materials used in the general maintenance of the plant, exclusive of material used in the repairs to machinery and the conditioning of plant equipment); and (4) plant equipment (including repair and maintenance supplies for conditioning plant equipment).

The results of this trial indicated that a national census should not follow exactly along the lines of the Cleveland survey. On the other hand, those who directed the experiment believe it is feasible to conduct, in conjunction with the Census of Manufactures, a national census of distribution that would be of very great value.

We, therefore, request that the Bureau of the Census include in the next census of manufactures, schedules containing questions similar to those used in the Cleveland experimental survey, but modified for each industry to conform with conditions existing in that industry. We also ask that the consumption figures now published in the Census of Manufactures, be still further broken down and published for each county.

This information is of great economic importance and will help to eliminate waste in the distribution of industrial products for which American buyers are now paying 35 billion dollars a year. For such a distribution census, industrial atlases of the United States could be prepared that would furnish information useful in establishing sales territories and quotas, routing salesmen, and in planning sales promotion and advertising campaigns.

Let us hope that such a census will be taken in 1930 and that it will be a forerunner of similar procedures by the Governments of other countries. Think of the time and money that could be saved if there were available from Government records complete and accurate statistics on the consumption of industrial products, geographically and by industries, throughout the entire world.

Some Significant Trends

An interesting trend is the increasing number of occasions on which business men from different countries are meeting to discuss matters of common interest. A good example of this is the Convention of the International Advertising Association, which is to be held in Berlin, Aug. 12 to 15, of this year. This event, which I hope many of you will attend, should have a far-reaching effect in creating a better understanding of marketing problems as they affect the common interests of European and American manufacturers. It is an important step toward the establishment of closer and more friendly business relations between the nations of both continents.

Other interests are beginning to adopt a similar policy. The Naval Stores industry, probably the oldest in this country, is inviting to the next annual conference of the Pine Institute of America, representatives of producers, distributors, dealers and consumers of rosin and turpentine from all over the world.

The remarkable progress in methods of communication and transportation which we have witnessed during the past few years, is bound to have a noticeable effect on industrial marketing. Last month, delegates to the Foreign Trade Convention in Baltimore listened to an address delivered through the telephone from a man speaking in Berlin. Messages were sent to people in Shanghai, Manila, Valparaiso, Paris and to steamships in the Pacific, and replies were received in from seven to ten minutes.

The cable and the radio are no respecters of political boundaries and, along with the airplane, they are playing an important part in the development of international trade.

A keen student of international developments calls attention to

> . . . the increasing tendency abroad to manufacture locally where it can be done economically. Instead of shipping hides and importing shoes, Australia today is producing much of the footwear sold in that country. Instead of exporting crude oil and importing gasoline, Argentina is building refineries to produce gasoline. Everywhere there is an increasing tendency to utilize local products and labor and to eliminate transportation costs whenever possible. This trend is not a potential danger to manufacturers of industrial products in the United States; on the contrary, it spells opportunity for them. Establishment of local manufactures in other countries means a greater payroll, greater purchasing power, more construction, larger machinery and equipment requirements, and a wider market for all products which cannot be produced locally.

This observer also believes that too many manufacturers of American products forget all they have learned of selling in the United States, once they get beyond its borders. Here, we sell quality and get a price for it. There is evidence to prove that buyers of industrial products abroad in a competitive market will pay a higher price for superior quality and performance.

For example, in Trade Information *Bulletin* 540, of the Department of Commerce, we read that

> British imports of metal-working machinery during 1924 were declared at an average of 36 cents per pound, in 1925 at 31 cents, and in 1926 at 26 cents. That portion coming from the United States was declared at 52 cents for 1924, 50 cents in 1925, and *34 cents in 1926*. On a basis of value, the American participation varied from *61 to 64 per cent* of the total British imports in those three years. Imports from Germany were declared at 23 cents in 1924, 18 cents in 1925, and *17 cents in 1926*, and the German participation in the total ran from *25 to 29 per cent.*

In spite of the higher valuation, the British bought much American machinery.

Of course, capable salesmen, intelligent advertising, and good service are required to meet modern competition. No manufacturer would minimize the importance of these factors in selling his products in this Country, and he should remember that they are equally if not more important away from home. Industrial marketing to our export trade, from all I can learn, needs to be conducted more scientifically. This is a field in which the Bureau of Foreign and Domestic Commerce can cooperate very effectively.

WHAT SOME AUTHORITIES ARE SAYING ABOUT INTERNATIONAL TRADE

Lionel D. Edie, in his interesting book on the "Principles and Practises of Economics," maintains that

> More than ever before, we are drawn by a thousand bonds of reciprocal dependence into the commerce of nations and we are forced to visualize this mutual reliance as a first premise in all our thinking on international trade.

In an address before the Sixteenth National Foreign Trade Convention, held last month, Robert P. Lamont, Secretary of Commerce, said:

> Composition of our export trade is very different from that of even thirty years ago. At that time, agricultural products made up two-thirds of all our exports as against about 37 per cent now. Finished manufactures were barely one-fifth of the total, as against more than two-fifths at present. We are sending abroad constantly more of those things which our peculiar American ingenuity, our lavish use of capital, power and machinery, and our methods of large-scale and repetitive production enable us to turn out both in superior quality and at low cost. . . . Now that we have become the world's greatest manufacturing country, and that manufactured products are the greatest class in our exports, we have every reason to anticipate steady expansion in our foreign trade, perhaps even more rapid than that of most other countries.

The general public, also, is being informed that, in business, this Country must become world-minded. The following quotations are from a recent newspaper article written by Roger W. Babson:

> Hope for future industrial expansion in the United States at anything like the rate we have experienced during the past five years [said Mr. Babson] can be fulfilled only by intensive development of foreign markets. There are still, however, some people who look upon foreign trade as a matter of secondary importance and not a vital influence in our prosperity. They point out that only 10 per cent of our total production is exported, anyway. They forget that this 10 per cent which in 1928 amounted to over $5,000,000,000 is the marginal quantity which largely determines the price at which the other $45,000,000,000 of goods is sold. If our export surplus were not shipped abroad but were dumped on the domestic market, it would at once cause such a business panic as this Country has never experienced. A narrow-minded policy of isolation will never allow us to achieve the economic expansion which is our destiny. Our business men must learn to understand the peoples of foreign countries, their habits, ideals, customs and trade practises. We must think in terms of world problems rather than merely national problems.

The Department of Economics at Columbia University suggests it might be well to point out that the leadership which the United States has attained in foreign trade is, to a great extent, a result of economic disorganization caused by the World War, and that we do not have an absolute advantage over other countries in most of the products which we export.

During the war, England, for example, lost many of her markets. Because her advantages in production were not absolute but only relative, other nations and her own colonies, as well, were able to produce and sell many articles formerly supplied from England. Our present advantages are only relative, and consist primarily in superior capital and labor efficiency.

Prices in this Country are 70 per cent higher than they were in 1913. But, because our per capita production has increased about as rapidly as our increase in prices, we have been able to hold our own in foreign fields. Those foreign nations which have a lower price level than ours will not have to become as efficient producers as we are, in order to compete with us effectively.

That foreign countries are determined to increase their efficiency of production is indicated by their large purchases of machinery from us, amounting at the present time to about one million dollars' worth a day. Much of this machinery will be used in making highly specialized machines for their own use. All this should lead to greater world prosperity, for I believe most thoughtful American business men agree with the recent statement by Dr. Julius Klein that

> It is neither the policy nor the desire of American commerce to enter into competition for European markets with those who hold them today, but rather to supply the goods in which America specializes.

On the program today, there are a number of key men in the institution which is our greatest reservoir of information on world markets, namely, the United States Bureau of Foreign and Domestic Commerce. Our speakers' audience will be far larger than is assembled in this room, because the proceedings of this Conference will be published and widely distributed.

Those who believe we have performed a useful service by providing this channel for the flow of timely and important information and that a similar Conference should be held next year can help to bring this about by writing to either of the Associations that requested the meeting this year, or to the Secretary of Commerce.

VII

SPEECHES OF COURTESY

ADDRESS OF WELCOME[1]

ALBERT C. RITCHIE

Speaking on behalf of the State of Maryland, Governor Ritchie delivered this address Jan. 11, 1929, at the Baltimore Association of Commerce banquet honoring officials of the Western Electric Company, which had recently broken ground for its Point Breeze works in Baltimore.

Mr. Chairman, Mayor Broening, Mr. Bloom, and Members of the Baltimore Association of Commerce: I don't know anything which could give me more pleasure than the very brief part in this evening's program of exercises which falls to me. And warm and hospitable, Mr. Bloom, as is the welcome which Baltimore City will give you and your associates, I would not like you to think that your welcome was confined to the citizens of Baltimore. On behalf of the men and women of Maryland, I extend to you a most hospitable reception and welcome to every part of our great State.

You will find Maryland to be a miniature of the entire country. We have our mountains and our agriculture, our forests and our mines, our rivers and the great expanse of our Chesapeake Bay, and we have the great, broad metropolis of Baltimore, where the hum of a healthy industry is in the air.

Maryland has been first, as most of us here know, in many things. The first steam railroad in the United States operated in this State. The first commercial, electric railway ran out on North Avenue in the then northern section of Baltimore City. The first telegram flashed across the wires between Baltimore and Washington. Those are among the things which are the pioneers of the Maryland spirit of initiative and self-reliance which we of this generation have inherited. And they are backed up, gentlemen, by splendid natural resources and splendid opportunities which this Association of Commerce renders such notable service in developing and progressing and advancing.

Therefore, it is eminently fitting tonight that we should welcome to this State Mr. Bloom and his associates in the Western Electric Company, our latest great resource, destined to add so much, I know, to the business and economic life of our City and of our State. And I hope, gentlemen, that you will profit from your relations with us as I know we will profit from your contributions to our material and business prosperity, and as we will profit, too, from your contributions to the character and the high purposes and ideals of Maryland business and industrial life.

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PRESENTATION OF BUST OF ALEXANDER GRAHAM BELL

WALTER S. GIFFORD

Mr. Gifford, President of the American Telephone and Telegraph Company, made this address in presenting the bust of Alexander Graham Bell to the Smithsonian Institution, Washington, D. C., Dec. 9, 1926.

MR. CHANCELLOR, REGENTS OF THE SMITHSONIAN INSTITUTION, AND MR. SECRETARY: The stately presence and the hearty genial smile of Alexander Graham Bell were for many, many years familiar to these halls. Now that he is gone, we of the Telephone which he invented ask the privilege of seeing to it that, as his memory will always remain here with you who were associated with him in the conduct of this great institution, so also his face and the spirit that always actuated him shall continue to be familiar to those who come in and out of this building, whether as workers, as students, or simply as visitors.

To us of the Telephone, history presents the figure of Alexander Graham Bell as that of a young man of 29 with black hair. To you he is primarily the distinguished citizen of his later years, with white hair and full white beard. But whether of few or of many years in age, his eye and his smile were always the same,—keen, radiant, generous, genial, even jovial in his enthusiastic interest in all that concerned the welfare of his fellowmen. Alexander Graham Bell was always young in spirit,—young in his loyal companionship with others, young in his engrossing devotion to the service of the unfortunate, young in his absolute confidence in Life. The years brought no difference in his spirit. His spirit was always the same.

But although our closest association with Alexander Graham Bell was in his earlier days, we of the Telephone as a matter of fact usually think of him, as you do, in his later years. Accordingly we have asked our sculptor to present in this portrait the young spirit of this man, not in his early years when he invented the telephone, and when he was only at the beginning of his great career, but in the full maturity of his riper manhood, in his large versatility, when he had accomplished so much, when he had gone forth into other fields and in every field had wrought fruitful achievement.

So, as we of the Telephone see in his portraits the Inventor of the Telephone, may Radio see no less the inventor of the Photophone, the first Wireless; may Surgery see the inventor of that device which preceded the X-ray in the merciful location of foreign substances in the body; may Aviation see the friend and champion of Samuel P. Langley and the experimenter of the Tetrahedral Kite; may Naval Engineering see the inventor of the Hydrodrome; may the Deaf see him who all his life was their Teacher and Benefactor; and may all who work for the improvement of the human race see the tireless Student of Heredity, Eugenics and Longevity.

Alexander Graham Bell was for nearly thirty years, from 1893 to his death in 1922, a Regent of the Smithsonian Institution. For the same long period of time he was a member of the Executive Committee of this Board. You know his services in this capacity better than I. But his earliest association with this Institution is especially significant to us, and it is a common bond between the Smithsonian and Telephone. On that occasion this Institution in the person of its great first Secretary, Joseph Henry, rendered a most important service to humanity and the future. It was in March, 1875, before Bell invented the Telephone. The incident happened in one of these rooms, possibly in this very room. Bell was at that time thoroughly worn out and very much discouraged. In all lines of work, in all the triumphs of life, great discouragement often precedes the splendid moment of final success. Let me read to you from Bell's own account of it in a letter to his father and mother written on his return from Washington to Salem:

> I am now beginning to realize the cares and anxieties of being an inventor. Flesh and blood could not stand much longer such a strain as I have had upon me. You seem to think that my anxieties are over, when in truth they are really only beginning.
>
> When I was in Washington [Bell goes on] I had a letter of introduction to Professor Henry, who is the Tyndall of America. I had found that some of the points I had discovered in relation to the application of acoustics to telegraphy had been previously discovered by him. I thought I would, therefore, explain all the experiments, and ascertain what was new and what was old. He listened with an unmoved countenance, but with evident interest to all, but when I related an experiment that at first sight seems unimportant, I was startled at the sudden interest manifested. He started up, said, "Is that so? Will you allow me, Mr. Bell, to repeat your experiments, and publish them to the world through the Smithsonian Institution, of course giving you the credit of the discoveries?"
>
> I said it would give me extreme pleasure, and added that I had apparatus in Washington, and could show him the experiments myself at any time. We appointed noon next day for the experiment. I set the instrument working and he

> sat on a table for a long time with the empty coil of wire against his ear listening to the sound.
>
> I felt so much encouraged by his interest [Bell continues] that I determined to ask his advice about the apparatus I have designed for the transmission of the human voice by telegraph. I explained the idea and said, "What would you advise me to do,—publish it and let others work it out; or attempt to solve the problem myself?" He said he thought it was "the germ of a great invention," and advised me to work at it myself instead of publishing. I said that I recognized the fact that there were mechanical difficulties in the way that rendered the plan impracticable at the present time. I added that I felt I had not the electrical knowledge necessary to overcome the difficulties. His laconic answer was, *get it.* I cannot tell you how much these two words have encouraged me.

Bell went ahead and "got it." A year later, on March 10, 1876, from his little laboratory on the top floor of his boarding house at 5 Exeter place, Boston, Bell telephoned his assistant, "Mr. Watson, come here; I want you."

Alexander Graham Bell was grateful to Joseph Henry for that encouragement all his life. No less, I am sure, was he grateful to this Institution. So too with us, the scientific sons and heirs of Alexander Graham Bell, with our reverence for the memory of Joseph Henry and our appreciation of this noble center of science and culture, I assure you, gentlemen, that as we come here today there is in our feeling something of gratitude for that vital encouragement from the great Secretary of the Smithsonian to the young Inventor of the Telephone just at the time when he needed that encouragement most.

Mr. Chancellor, Gentlemen of the Board of Regents of the Smithsonian Institution, and Mr. Secretary, in behalf of the American Telephone and Telegraph Company, and in commemoration of the 50th anniversary of the birth of the Telephone, I present to you this bust of Alexander Graham Bell.

IDEALS OF THE TELEPHONE SERVICE—A TRIBUTE TO THE MEMORY OF ALEXANDER GRAHAM BELL[1]

JOHN J. CARTY

General Carty, Vice-president, American Telephone and Telegraph Company, and Retiring President, Telephone Pioneers of America, delivered this address at the convention of the latter organization, Cleveland, Ohio, Sept. 29, 1922.

This is the Ninth Annual Meeting of the Telephone Pioneers of America, although our association is now entering upon its twelfth year. On account of the war, during three years no annual meetings were held. The Pioneers were then engaged in the great struggle to save civilization.

The membership of our association is made up not only from those who took part in the first development of the telephone, but also from those who have been in the telephone service for a period of twenty-one years. We have in the service tens of thousands of zealous men and women doing Pioneer work now, but because they lack in years, though not in achievement, they have not been enrolled. We and they are looking forward to the day of their formal admission. To these our fellow-workers we extend our greetings and our appreciations. In their hands, lies not only the future of our society, but the future of our art.

Our first meeting took place eleven years ago, at Boston, the birthplace of the telephone. At that meeting, the inventor of the telephone, Alexander Graham Bell, was present and delivered to us an address which must always be memorable in the history of our Society. Today, we recall with peculiar sadness these words which he then spoke to us:

> This is a great day for me, the first meeting of the Telephone Pioneers of America and of the world. It gives me great pleasure to meet with you all today, and yet there is a feeling of sadness about it. I am the first telephone pioneer and my memory goes back to the very beginning, and I miss the faces I remember so well, the faces of the old pioneers who I wish were here today. . . . I feel it a little presumptuous on my part to try to speak of the telephone to telephone men. You have all gone so far beyond me. Why, the little telephone

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[1] By permission of the author.

> system that I look back upon, what is it compared to the mighty system that goes through the whole extent of our country today? It is to you that this great telephone development is due, and I feel that it behooves me to speak very modestly of the little beginning that led to this great end. I cannot tell you anything about the telephone. I cannot speak to you about undulating current, intermittent current, and pulsatory current. I belong to the past; you belong to the present.

Here stand revealed those lovable qualities of the great pioneer—generosity and modesty—which endeared him to us all. It is true, indeed, that he belonged to the past, though then he still belonged to the present. Now he belongs to the ages.

Alexander Graham Bell died on Wednesday, August 2, at the age of seventy-five, at his summer home in Nova Scotia, near Baddeck. He was buried on August 4, at sunset, on the summit of a mountain overlooking the Bras d'Or Lakes. As a tribute to his memory, telephone service was suspended for one minute throughout the United States and Canada during the simple ceremony.

The manifold activities of his life, devoted to the service of mankind, would require volumes to portray. The medals and other honors which he received from learned societies, his honorary degrees from Universities at home and abroad, and special recognition by Governments, all testify to the esteem in which he was held. His scientific researches in the field of heredity and eugenics, his experiments in aeronautics, his work in improving the phonograph, and in teaching the dumb to talk, and his invention of the photophone, reveal the scope of his mind. This record alone is enough to insure his fame, but his discovery of the method of transmitting articulate speech by electricity, and his invention of the apparatus to do this, have placed his name among the immortals.

Dr. Bell was born March 3, 1847, in Edinburgh, Scotland. He went to Canada in 1870, and the next year, at the age of twenty-four, he removed to Boston. After introducing into New England schools improved methods of teaching deaf mutes to speak, he was appointed Professor of Vocal Physiology in Boston University.

In his spare time, he conducted experimental researches in electrical wave transmission. He was assisted financially in these experiments by two gentlemen of Boston, Thomas Sanders and Gardiner Greene Hubbard. By the summer of 1874, he had worked out his theory that the transmission of speech by electricity could be accomplished by producing "electrical undulations similar in form to the vibrations of the air" which accompany the original words or sounds. In spite of great difficulties and discouragements, he succeeded in reducing his theory to practical form, when, at Boston, in the summer of 1875, he invented a telephone which faintly transmitted parts of words and even entire words.

Mr. Thomas A. Watson, Bell's assistant, relates that it was on March 10, 1876, over a line extending between two rooms in a building at No. 5 Exeter Place, Boston, that the first complete sentence was ever spoken and heard through the electrical telephone. It was spoken by Bell and heard by Watson, who recorded it in his note book at the time. It consisted of these words: "Mr. Watson, come here; I want you." Thus the telephone was born.

After completing his fundamental invention, Bell in a remarkable document predicted with amazing foresight the telephone system of the future. He also invented the photophone which was the first method of transmitting speech by electricity without wires, and the induction balance and the telephone probe for which he was awarded the honorary degree of Doctor of Medicine by the University of Heidelberg. To his successors in the laboratories in which he was the original worker, he left the further conduct of telephone research and development.

Turning to other departments of science, he displayed his remarkable intellectual gifts by the fruitful researches which he conducted. In his work on behalf of the deaf, which he continued to the end, is revealed a dominant motive in his life.

To Bell was accorded a privilege so often denied to those who have advanced the world by their discoveries—he lived to see the triumph of his great idea. When the first sentence was transmitted, the public regarded the telephone as a scientific toy. Then, the telephone plant of the entire world could be carried in the arms of a child. Today, vast telephone systems of intercommunication have been developed, extending the spoken word among the peoples of the nations.

The advances of the telephone art made by the successors of Bell were always a source of great satisfaction to him. Some of these, epoch-making in their nature, gave him special gratification.

On January 25, 1915, the transcontinental line, spanning Bell's adopted country from ocean to ocean, was in the presence of dignitaries of state and nation, dedicated to the public service. This was a day of triumph for Bell, for, using a reproduction of the original instrument, he once again spoke the memorable words, "Mr. Watson, come here; I want you." But this time Bell was at New York, and Watson, who heard him with perfect ease, was three thousand miles away in San Francisco.

Another advance attained the greatest distance over which the transmission of speech had ever been achieved. Early in the morning of September 30, 1915, words were spoken through a radio telephone at Arlington, Virginia, to the Hawaiian Islands where they were plainly heard. But, as if to proclaim the telephonic conquest of time as well as space, the words reached these distant islands of the Pacific when it was there still the evening of September 29.

There yet remained to be realized that prophetic dream of the telephone pioneers—the bridging of the Atlantic by the human voice. But the day of its fulfillment was not far off for on October 21, 1915, during the dark days of the war, speech was for the first time in history successfully transmitted across the Atlantic Ocean. This was accomplished by the radio telephone, which carried the words spoken at Arlington, to the Eiffel Tower at Paris.

The last memorable telephone development destined to occur in the life of Bell will always be associated with a great historic occasion. At the burial of the Unknown Soldier at Arlington, on November 11, 1921, the voice of President Harding, by means of the new loud speaking amplifiers, was easily heard by the great concourse of a hundred thousand people about him, even by those in the most distant parts of the vast cemetery. Corresponding multitudes numbered by tens of thousands, at New York and San Francisco, heard over the wires every word spoken by their Chief Magistrate, as clearly as though in his actual presence. These distant multitudes heard also the invocation of the Chaplain, the music and the hymns, and the words of the commitment service used by the Bishop at the grave. They joined with each other and with those at the cemetery in the singing of the hymns, and they united with the President in reciting The Lord's Prayer with which he closed his address. They heard in amazement the salvos of artillery fired at the grave, and even those on the shores of the Pacific caught the loud reverberations thrown back by the Virginia hills. At the end, in profound silence and with heads bowed in sorrow, they listened to the plaintive notes of the trumpet sounding the soldiers' last farewell.

On that day, the achievements of science imparted a mystical power to the most solemn national ceremony in the history of America. This ceremony, its deep significance so enriched by the art of Bell, we can now believe contained an exalted sanction of the greatest of all the achievements of his life:

These are but some of the advances which have been made in the first half century of the telephone art, which is now drawing to a close.

They belong to the golden age of communications which has achieved the extension of the spoken word throughout both space and time.

But this golden age has not yet ended, and when we contemplate the possibilities of the future we discover that it has only just begun. It is to the future that we must now turn our minds and direct our endeavors. It is true that we Pioneers belong to the past, but it is equally true that we belong to the present. As individuals, we must all pass away, as did the First Pioneer; but our Association, the Telephone Pioneers of America, will continue to live. The greatest work which our society can do, is to exemplify the ideals of our service, and to transmit to its future members the splendid traditions of our art. It should be our purpose to encourage and to sustain among the men and women of the telephone system their ever-increasing zeal for the public service.

While it is beyond my power to put into words these ideals of our service, they already exist within your hearts and mine, where we all can feel, though I cannot express, their potency. These feelings which form the mainspring of our actions, do not arise from mere wishful thinking, nor do they spring from an idealism which is disconnected from reality. They rest upon a solid basis of achievement, and represent the practical purpose of that great telephone system of intercommunication which bears the name of our First Pioneer.

It is interesting to note that the biologists were the first to appreciate the peculiar importance of electrical communications in the social organism, and to Herbert Spencer, writing more than fifty years ago, we are indebted for some analogies which have not yet been sufficiently studied by either the biologist or the engineer. In tracing the analogy between the telegraph system of his day and the nervous system of the animal organism, Spencer expressed the view that probably when the then rudimentary telegraph systems were more fully developed, other analogies would be traceable. This development has already been provided by the telephone art, and national telephone networks have now become a vital part of the social organism. I believe that the study of these networks from the standpoint of biology is destined to yield important results, and indeed, that an investigation of the remarkable developments of the automatic machinery used in modern telephone switchboards might even throw light on the mechanism of the mind itself.

Scientists have long been studying the theory that man has advanced to his present high estate by upward progress in the biological scale from a microscopic speck of protoplasm forming the biological cell or unit of life. They have pictured him as composed of countless millions of these living creatures forming an organic entity marvelously designed, each cell performing its allotted part in that exquisite division of labor which characterizes this biological State.

We commonly compare a nation to a complex living organism. "We speak of the body politic, of the functions of its several parts, of its growth, and of its diseases, as though it were a creature. But we usually employ these expressions as metaphors, little suspecting," as Spencer says, "how close is the analogy, and how far it will bear carrying out. So completely, however, is a society organized upon the same system as an individual being, that we may almost say that there is something more than analogy between them."

Each cell has its allotted and specialized work to do. Each cell must be fed, and live, and grow. Sustenance must be obtained, prepared, and assimilated, and the waste removed. The physiological mechanisms for doing these things and many other things besides, have their striking counterparts in the structure of organized society, and furnish instructive material for the philosophic student. But to us of the telephone art, the most marvelous thing of all is the nervous system, that inconceivably complex communication network, by which the activities of both individual and society are regulated and without which paralysis and death would result.

We are told that the cells which compose the nervous system are the latest to appear in the upward march of the organism, and that the degree of their complexity and the extent of their differentiation furnish a criterion for determining the stage of progress which has been attained. Because of the high function, almost spiritual in its nature, performed by these nerve cells, they have been called the noble cells. I have long felt and often expressed the feeling that because of this the workers in the telephone art are engaged in a high calling, building up the noble cells which constitute the nervous system of the Nation.

As in the animal body, these cells were the latest to appear, so in the structure of organized society the highest form of electrical communication, the telephone, is the latest to appear—it comes only at the stage of higher development. And again as in the animal body, the stage of development of the nervous system is an index of its place in the evolutionary series, so I believe it will be found in any social organism that the degree of development reached by its telephone system will be an important indication of the progress which it has made in attaining coordination and solidarity.

The use of the spoken word to convey ideas distinguishes man from all other created things. The extension of the spoken word by means of electrical systems of intercommunication serves to connect the nervous system of each unit of society with all of the others, thus providing *an indispensable element* in the structure of that inconceivably great and powerful organism which many biologists feel is to be the ultimate outcome of the stupendous evolution which society is undergoing.

That such an organism, thus so magnificently conceived, would be the outcome of the higher evolution of man, I have long believed; but its form and the nature of its functioning, I could not imagine. But the great work of Trotter, who has studied the gregarious instinct in the lower animals and in man, permits us to contemplate his evolutionary entity from a new point of view. He has pointed out that nature, having failed in her giant organisms, in which so many individual cells were crowded into such animals as her giant lizards and the mammoth and the mastodon, was to try a new method which was to dispense with gross physical aggregations of cells combined into one body. He points out that the flock, the herd, the pack, the swarm—new organizations—were to be devised by nature, and to flourish and range throughout the world, and that in one of these new organizations, human society, the individual man is still to be regarded as the unit, but not constrained as is the cell in the animal body, but free to move about, the mind alone being incorporated into the new unit by the marvelous power of intercommunication. He shows that the power of these organisms depends on the capacity for intercommunication among their members, and that this power expands until the limits of this intercommunication are reached.

How fundamental electrical communication systems are, in the tremendous evolution of the human race which is now being manifested in the organization of society, and how vital to the welfare of mankind is the daily work of telephone men and women everywhere, is being made more and more apparent by the discoveries of the new school of biologists.

Speaking always of communication in its broadest meaning,[1] but emphasizing the importance of speech, Trotter says:

> The capacity for free intercommunication between individuals of the species has meant so much in the evolution of man, and will certainly come in the

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[1] In this, should be included all methods of communication based upon speech, such as newspapers, books, and letters, depending upon mechanical transportation; and telegrams, depending upon electrical transmission.

> future to mean so incalculably more, that it cannot be regarded as anything less than a master element in the shaping of his destiny.

And again, in speaking of human society as a gregarious unit, he says:

> The ultimate and singular source of *inexhaustible* moral power in a gregarious unit is the perfection of communion amongst its individual members.

As long as intercommunication was limited, he tells us, the full possibilities of nature's new experiment were concealed. But at length appeared man, a creature endowed with speech, in whom this capacity for intercommunication could develop indefinitely.

> At once a power of a new magnitude was manifest. Puny as were his individuals, man's capacity for communication soon made him master of the world. . . . In his very flesh and bones is the impulse towards closer and closer union in larger and larger fellowships. To-day he is fighting his way towards that goal, fighting for the perfect unit which nature has so long foreshadowed, in which there shall be a complete communion of its members, unobstructed by egoism or hatred, by harshness or arrogance or the wolfish lust for blood. That perfect unit will be a new creature, recognizable as a single entity; to its million-minded power and knowledge no barrier will be insurmountable, no gulf impassable, no task too great.[1]

Here we have portrayed the forward march of humanity toiling ever onward to attain its goal. The realization that their wonderful art is destined to play such an important part in this final attainment, opens up a never-ending source of power and inspiration for telephone men and women everywhere. It adds new dignity to their calling. Already, as we have seen, the human voice has been carried with the speed of light across the Atlantic Ocean, and across our continent, and far out into the Pacific; but still greater things are to come.

It is the mission of the Pioneers and their successors, and their associates among all the nations, to build up a telephone system extending to every part of the world, connecting together all the peoples of the earth. I believe that the art which was founded by Alexander Graham Bell, our First Pioneer, will provide the means for transmitting throughout the earth a great voice proclaiming the dawn of a new era in which will be realized that grandest of all our earthly aspirations—the brotherhood of man.

[1] "Instincts of the Herd in Peace and War"—W. Trotter.

A TRIBUTE TO CHARLES EVANS HUGHES[1]

IRVING T. BUSH

November 10, 1925, the Honorable Charles Evans Hughes was guest of honor at a dinner in New York, commemorating his services in the cause of international goodwill. Speakers were Irving T. Bush, Chairman of the Committee, Elihu Root, former Secretary of State, and Mr. Hughes. Their addresses, and the remarks of Mr. Bush in introducing Mr. Root and Mr. Hughes, follow.

I have always felt that the Chairman of an occasion of this kind is a very foolish looking person. No doubt by that standard I can qualify. But the foolishness I particularly refer to is the fact that he is supposed to introduce to you men who are very much better known to you than the Chairman. I hope no one here tonight is under the impression that it is my duty to introduce to you two men who through long years of faithful public service have endeared themselves to your hearts. They need no introduction to you, their friends, or to the world, for they are known and honored far beyond the limits even of our invisible audience. I am not here to introduce Mr. Hughes, our guest, to you; or Mr. Root, who will speak to him for you. But I am here to tell Mr. Hughes that this is a gathering of his friends—friends, Mr. Hughes, who have not come here tonight because you hold political office and may perchance do something for them, but friends who are your fellow townsmen and who have watched your career year by year with ever-increasing admiration and honor, and, as the mellowing hand of time has ripened that career, have known within their own conscience that these sentiments have ripened into a very real affection. They are friends who ask nothing from you at this gathering tonight save an opportunity to tell you that they have a very high regard for you as a citizen of New York. (Applause.)

You have been Governor of this great State. You have been Associate Justice of the highest court in the nation, and you have sat at the right hand of two Presidents as Secretary of State. We honor you for these achievements. But it is not because of them that we are here. It is not because of what you have done, but because of the way in which you have done it (applause), because your career has been an open book and never in all the long years of your public service has there been a whisper behind a single hand. I would not have you think that I hold lightly these great achievements or the many things of material importance that you have done. I know Mr. Root will have something to say of the splendid public service which you have rendered to your fellow citizens.

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[1] By permission of Mr. Bush. This and the two following speeches reprinted from the brochure, *A Tribute to Hon. Charles Evans Hughes in Recognition of His Services to the Cause of International Goodwill,* published by Mr. Bush.

But I have in my mind during the few moments that I shall speak, a more intimate note, not for myself, but for my fellow hosts to you tonight. I wish to tear away the slightest shred of formality from this dinner and to tell you why I think this room is filled to its utmost limits with your friends. Many of them are of long standing. Some of them perhaps you have not met until this evening and may not meet again; but they are your friends nevertheless, Mr. Hughes, because they believe in you, and they are here tonight to bear their testimony, their silent testimony—yet not too silent, I hope—of their real affection for you.

You have faced many difficulties and been compelled to find solution for many hard problems; but you have never chosen the easiest way, and you have won your way to our fullest confidence and esteem, largely I believe, because you have faced each issue as it has come up as a moral issue.

I remember the long chat I had with you in Washington when I returned from Russia two years ago. As I left the room you said to me, speaking of Russia, "It is a moral issue, Mr. Bush. We cannot hold contact with a government which does not maintain standards of honor similar to our own." (Applause.)

And I think it is because you have faced all of these issues and found solutions to all of these problems by the higher and finer standards of moral judgment, that you have endeared yourself to so many of your fellow men.

I am not one of those who sneer at idealism, although it often seems to end in empty vaporing. But idealism to be of great service in the world, beyond being a spur of conservatism which is so apt to linger and lag behind, must be of a practical nature. And you in your dealing with the stricken people of Europe have not been content to think even great ideals of what might be done, but through the Dawes Plan, which was a sane child of your sane brain, you have created a practical idealism and have shown the world and the stricken people of Europe the way out of some of their troubles. (Applause.)

It is said that the people of New York are cold and ungrateful. It is not true, Mr. Hughes. We are busy, very busy, and in our hurry and preoccupation we often forget to say the things which we should say in appreciation of those who serve us so loyally in public office. Tonight each one of us is here to pay his tribute to you for the things which you have done for us and for the world, and we are here to pay our friendly tribute because you have stood erect in doing it.

We cherish you because you have done great things in a simple and modest way. We like your modesty. It is refreshing in a man in public office, and we have not always been accustomed to it. I don't remember, when I visited Albany years ago, of seeing a sign upon the Capitol saying that this is "Governor Hughes' Capitol." (Laughter.) Nor when I journeyed to Washington in more recent years did I see a sign upon the Department of State that this was Secretary Hughes' Department of State. You made us feel that you were working for us by a very simple method, really working for us, and when you laid down the tools of office, you went out of office with the same quiet dignity that you entered it and filled it.

Tonight is Armistice Eve. Seven years ago No Man's Land still lay between hostile armies.

You had no hand in drawing those treaties, which some still call treaties of peace, but you have written in the books of history its best pages of peace.

The world acclaims—and justly—the Pact of Locarno, but back of Locarno lay the Disarmament Conference at Washington, over which you presided with such wisdom and skill, and the Dawes Plan, which, as I have said, is the sane child of your sane mind. Mr. Dawes, were he here tonight, and our own Owen Young, who is unfortunately out of town, would be the first to give you credit for formulating the idea which grew into the Dawes Commission.

I have a letter which came to me unasked and unexpected this morning from Mr. Owen Young. It expressed in a most cordial and feeling way his appreciation of the great work done by Mr. Hughes, and how he formulated the idea of the Dawes Commission, and then waited patiently until the world buried its hate, to see again with sanity. It was because of this, and because in every document your hand has touched you have written good will where once was hate, that we chose Armistice Evening. This sentiment printed on the menu card, "Good faith and good will usually form the foundation of the temple of peace"—those sentiments, Mr. Hughes, will live long after all those who are in the room tonight have gone beyond.

And to you, Mr. Root, may I say a word of special greeting from these other friends of Mr. Hughes for whom I am privileged to speak tonight. You are here to do honor to our guest, but you are held in such exceedingly high and affectionate esteem by us all that before I give way to you, I should like to tell you how deeply appreciative is the committee and your fellow hosts tonight for your coming here and speaking for them to Mr. Hughes. Indeed, in our hearts you occupy a very similar corner to that held by Mr. Hughes, and it is a warm corner, kept warm by the fires of a very real, affectionate friendship.

Only a short generation in time ahead of Mr. Hughes, your career has been very similar to his, and marked by the same fine disregard for cheap popularity and the same high regard for the finer qualities in life, which we sometimes may seem to fail to appreciate, but which we cherish with the highest honor and affection in our heart of hearts. You and Mr. Hughes have made many sacrifices in our public service and have achieved great distinction in your chosen profession. The road upward has been a little different, but in the end you each have sat at the right hand of two Presidents. In thanking you for speaking for us tonight, may I tender you the affectionate and appreciative greetings of these friends of yours and Mr. Hughes, and our thanks for your long years of public service. I think I may also add, without breaking any confidence, that when you and Mr. Hughes sat, each in turn, at that council table at Washington, it would have been the wish of your friends that you might have moved just one seat nearer the head.

But we live in a democracy, and with all its blessings we have one fault, that it has a somewhat haphazard way of choosing some of its representatives. I read an article in a magazine not long ago which illustrated this point. It told the story of many men who had been chosen for public office with that fatal lack of fitness which so often happens in this country. It started with a description of the laundryman who was head of the police force in San Francisco; it spoke of the horse-shoer who was Commissioner of Streets and Bridges at Houston, Texas; it mentioned the barber who was Commissioner of Public Utilities in Topeka, Kansas; and finally it ended with that crowning illustration of all, the undertaker in Jersey City who was Commissioner of Public Health. (Laughter.)

A democracy is, after all, a government by the law of averages, and it is unfortunate that the highest intellectual standards do not always make the most popular appeal to the average voters. Whether this is true or not, I sometimes think that at least within recent years our best presidents have been our accidents. Well, the day of accidents may not have gone by, Mr. Hughes (laughter), and I will say to you as I said to my daughter, when I noticed it took her two hours to say good-night to her fiancé, that it takes a long time to say good-bye to a good man. (Applause.)

Mr. Root, I now yield to you. This is an audience of friends. You need no introduction to them nor they to you. (Applause.)

A TRIBUTE TO CHARLES EVANS HUGHES[1]

ELIHU ROOT

Mr. Chairman, Mr. Hughes, and Ladies and Gentlemen: I am very grateful for the kind expressions of the chairman regarding myself. I thank him and all the management of this dinner especially for giving me the opportunity to speak the feeling that we all have about the guest of the evening. I think we are not so much here to do honor to Mr. Hughes as to thank him for having done honor to us. (Applause.) There is no better test of the character of people than that afforded by knowing what kind of man they honor and trust.

Mr. Hughes is a lawyer. I claim him for the Bar. If there be unworthy lawyers—and there are some—range them all together upon one side of the account and I will put Mr. Hughes on the other side of the account and thank you to pay me the balance in my favor. (Applause.)

He was predestined to do all the law business of the City of New York (laughter), and he is accomplishing that feat with considerable difficulty. He has had very hard luck in doing it. After some 20 years of teaching law and practicing law, it occurred to some one that the qualities he had exhibited would make him a good man to conduct an investigation into the affairs of insurance of this state, and he was put in charge. The way in which he conducted that investigation, the clear, temperate, firm, incisive conduct of that investigation, brought within a very few days from its beginning an offer of the nomination for the Mayoralty of the City, which he as promptly rejected.

When it was finished, the universal public recognition of the ability and fidelity which he had displayed in that service led to his nomination for Governor. He was elected. His conduct of the office of Governor placed him so high in universal estimation that the President of the United States before the close of his office appointed him a Justice of the Supreme Court of the United States. The universal respect which he won as a Justice of the Supreme Court, added to the recognition of his qualities in Executive office, brought him the nomination of his party as their candidate for President of the United States. He won the fight for President of the United States and lost it through treachery. (Applause.) He returned to the practice of law. When Mr. Harding became President and was obliged to select a Secretary of State to take charge of the then all important business of foreign affairs, there was one man, and one man only, that was plainly indicated for that service, and Mr. Hughes became Secretary of State of the United States. With it all, with all the labors, the exhausting labors, of the offices which he had held, he was a model citizen. No good cause for the public interests ever found him indifferent. He shrank from no labor, from no disturbance of the leisure to which he was entitled, when called upon to head one of the great public movements, organized movements, through which opinion in this country is formed and expressed.

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[1] By permission of Mr. Root.

I am not going to enumerate the good things that he did in these various offices.

As Governor, he established a short circuit of the current of opinion passing from the people of the State to the Government of the State, and went direct to the people, leaving aside all the customary and time-worn, shop-worn consultation and control of political organization.

As Justice of the Supreme Court, he was one of the little body of shock troops who met and have always met in the history of our country with wisdom and courage the assaults upon the foundation principles of our institutions. (Applause.)

As Secretary of State, he had to take up a Department of State which was in a condition of virtual coma. (Laughter.) It had fallen into that state through a series of causes, notwithstanding the able and devoted efforts of the gentlemen who had been in direct charge of the department. The organization at the beginning of the war in Europe of outside agencies for the purpose of conducting our foreign affairs, left the State Department marooned upon one side. All the real business was done outside of the Department. Information as to what was going on was scanty in the Department. And then the changes in the head of the Department, the unfortunate, lamentable illness of the President which left no direction for the Department, the uncertainty whether we were going into the League of Nations—all these had produced a condition which was not that of a living, active, effective organization, and Mr. Hughes had to take up that condition. And for it he substituted clear and definite and positive declarations of policies which the people of the country could always understand. (Applause.)

There are four special things which I think should be stressed in his service in the State Department. The Chairman has already alluded to three of them. The first was the conference for the limitation of armaments. It seems doubtless, looking backward, that it would have been very easy. It was delicate and difficult and critical. There was a condition of suspicion and distrust between two nations upon the opposite sides of the Pacific, each being told, and told over and over and over again, that the other was contemplating hostilities; each preparing for hostilities by competitive armament, and no way of putting an end to it except by some positive, unusual and sensible measure. The way adopted was calling together the representatives of the nations directly concerned and not going beyond that. And you will observe that the Conference of Locarno, which has changed the face of Europe, has changed the mind of Europe, has given courage and hope to Europe, was our sister of the Arms Conference in Washington five years before. (Applause.) It was applying the principle of international conference to the representatives of the nations concerned.

In the Arms Conference the five nations having naval power which made them significant figures in whatever might happen in the Pacific, and those five only taking part in the conference; and as to China, which was involved incidentally, but most importantly, the addition of four other nations which had interests in China, and those only being included in the conference. That is precisely the recourse to which the states of Europe came when they met at Locarno, and the two great clouds of war which have arisen above the horizon since the armistice seven years ago, were dispelled, one at Washington and the other at Locarno. (Applause.) The conduct of that conference was of the highest quality. A lot of representatives, many of them doubtful, many of them suspicious of each other; a condition of feeling out of which war might come any day; a condition of mistrust and resentment, all of these were disposed of by the firm, clear, simple, honest treatment of the subject by Mr. Hughes (applause), not only in the presentation of the great proposal of the United States to sacrifice a large part of her naval armament upon condition that the other powers did likewise, but in the management of all the conferences in committee; the simplicity, and good temper, and keen insight with which the committee of the whole, not small committees—with which the meetings of that great committee were managed, so that all irritations were allayed, no possibilities of misunderstanding were permitted, and gradually among all the delegates there came to be an acceptance of fair dealing, of honesty, of good intent, and of a common interest to dispel the war cloud.

I think you will go far to find any public service to the world rendered with a higher order of ability or with more signal success than the service that Mr. Hughes rendered in directing and controlling that Conference. (Applause.)

A second special service is what Mr. Bush has already referred to: the foundation of the Dawes Commission. Now that does not mean merely thinking of the Dawes Commission, it does not mean merely devising the plan which ushered in the Dawes Commission. It means having viewed with firmness of temper and clearness of sight all the great multitude of proposals and expedients and suggestions more or less wild and excited which the United States Government had been urged to take part in. It was not merely that Mr. Hughes planted himself upon the policy which was executed by the Dawes Commission, but it was that he had refused to be diverted from the clear sight that he took of that as the only possible curative policy.

A third is the treatment of our policy towards Russia. I cannot hope to express adequately the importance which in my own mind I give to that. There was great pressure—and I dare say there is still—there was great pressure to yield to sentimental views about friendly relations with the people of Russia. A number of nations had yielded, partly to that sentimental view and partly to the desire to restore trade with Russia. The idea that everything was to be done by rule of thumb, and that here was a vast people who had formerly been valuable customers for the production of the more highly organized industrial nations, and that after all, notwithstanding their form of government, and their principles of government, it was better to start the trade again. Mr. Hughes saw what it is all important for a people to have somebody see in its government, that there was a fundamental weakness in that proposal. He knew what was the meaning of the recognition by one government of another. He knew that it was not a mere formality, that the recognition of one government by another creates an international status in which each government assumes certain obligations towards the other. He knew that recognition means that each government accepts the implied assurance of the other government that it will maintain true friendship, true respect, true observance of the obligations of good neighborhood. And he knew also that the fundamental doctrine of the men who govern Russia now is that it is their mission in the world to overturn and destroy the government of the United States, of England, of France, of all the civilized nations of the western world. (Applause.) He knew that in the first place the act of recognition would be a formal and a solemn lie, a false pretense of accepting the obligations of the Bolshevik rulers of Russia to observe friendship to the government and the people of the United States. He knew that they did not intend friendship, but they intended enmity and destruction to the government of the United States and the institutions of the American people, and he knew in the second place that to recognize the Russian Government would be to open the doors to them to carry out their purpose of destructive enmity, and would be a stupid and idiotic yielding to mere momentary expediency in order to make future disaster certain. (Applause.)

The fourth special service consisted in his admirable statement of the true relation of the Permanent Court of International Justice to the American people and American ideals. (Applause.) He asserted the duty of America to follow still its traditional policy of promoting the judicial settlement of international disputes. He gave it new strength and the approval of the Executive government of the United States. It is all very well to talk about peace, to talk about outlawing war, but all the wars of modern times have been waged in the face of solemn agreements outlawing war. Here was presented clearly for our approval or disapproval, an established institution, which afforded a way in which people who have become irritated and suspicious of each other, who have controversies that neither side can give up without humiliation, may consistently with their dignity and without humiliation, have their controversies settled—the same way in which private war has been banished from human society in civilized countries; and it was his work which makes it possible that now our government may do what I hope it will do in the course of the next few months, give the approval of the United States to that great permanent court established in accordance with the American principles and American policies. (Applause.) But it is not merely what Mr. Hughes has done that has shed honor upon us all, upon all of his countrymen. It is what he has stood for. He never sought an office; he never administered an office with a view to keeping it longer, or with a view to getting another. (Applause.) He never attempted to build up a personal political machine for his own aggrandizement. He never abandoned or suppressed an opinion which he thought ought to be expressed, in order to please anybody. He never hated or abused or imputed sinister motives to an adversary who differed from him. He always argued his case and never argued the merits or demerits of his adversary. (Applause.) He always sincerely respected the right of differing opinions in others, which is the true test of love of justice and of liberty. He always thought about his job and never about himself. He subdued his idealism to the uses of mankind. He never sought popularity by glittering generalities or noble sentiments, rhetorical or otherwise. He sought always the best possible means for weak and prejudiced and quarreling mankind, in order that a step might be taken towards the probability for betterment in the future. He never allowed the expediency of the moment to drive him off the bed-rock of sound principles of government and of international intercourse, in which he believed and which he openly and fearlessly and cogently declared and expounded.

When the future student of the history of our time studies the forces which have developed this nation and this community of nations of which we are a part, he will find that in the history of the administration of our state governments, he must note the service of Charles Evans Hughes as the Governor of the greatest State of the Union, who applied the highest standard of morals and of American principles in executing the office of Governor. When he studies the development of our law, he must reckon Charles Evans Hughes in the list of those men who have stood as a bulwark for the law under which alone justice under the Constitution of our people can be administered. When he studies the conduct of our foreign relations, he must point to the service of Charles Evans Hughes as the man who applied with sincerity and with effectiveness the underlying principles of international good faith and good feeling in the relations of this great republic to all other countries of the earth. (Applause.)

But when the teacher of the future comes to point out to the youth of America how the highest rewards of intellect and devotion can be gained, he may say to them, not by subtlety and intrigue; not by wire pulling and demagogery; not by the arts of popularity; not by skill and shiftiness in following expediency; but by being firm in devotion to the principles of manhood and the application of morals and the courage of righteousness in the public life of our country; by being a man without guile and without fear, without selfishness, and with devotion to duty, devotion to his country. And as he seeks to enforce that lesson, better than books, better than speeches, will be the example of Charles Evans Hughes, whom we honor tonight. (Applause.)

RESPONSE TO A TRIBUTE TO CHARLES EVANS HUGHES

CHARLES EVANS HUGHES

Mr. Bush spoke as follows in introducing Mr. Hughes: I have always thought that the ideal introductory speech was that of a certain gentleman of German extraction from the Middle West who was asked to introduce the Senator of his state. He said, "I am asked to introduce Senator Jones who will speak to you. I have done it. He will do it."

I should like to emulate that speech of introduction this evening. This dinner is to serve a double purpose. It is to say to Mr. Hughes how highly we honor the great work which he has done to promote international good will, but it is to serve a second purpose perhaps even closer to our own hearts. It is to welcome him back to the civic life of New York. I will, therefore, merely yield my place to our Governor, our statesman and our friend, Charles Evans Hughes. (Applause.)

Mr. Hughes: If this is the happiest moment of my life, it is also the most embarrassing. Words are useless, Mr. Bush, to requite such kindness and generosity, and what would be more becoming than "a great, sweet silence"? But that is denied me. You have sent me forth to the doubtful combats of public life. Sometimes I have returned with my shield, and at least once I returned upon it (laughter), but I have always come back. While it is a privilege to hold public office, it is the life beyond the political grave that is the best. In one respect the servant of the people is like that Apostle—he "dies daily." And his paradise of the blest, to which his hope fondly clings, is the old home with the kindred spirits who have not been estranged or deluded by the temporary official accouterment. It is their welcome and confidence that he prizes most.

With what a cloud of eminent witnesses is the Secretary of State compassed—official and unofficial observers! He moves in an atmosphere of the happiest traditions, the freest from partisan strife and pettiness of motive that our public life affords outside the judicial sphere. He is instructed and sustained by the example of his predecessors, the most illustrious of American statesmen. Their strong faces daily speak to him, not of cunning, or of intrigue and secret scheming, but of sagacity, of intelligent conception of the country's interests, and of un-

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[1] By permission of Mr. Hughes.

remitting devotion to the cause of peace. How fortunate we are that one of those choice spirits, second to none of them in intellectual power and constructive ability, is still incarnate, with undimmed eye and undiminished vigor, permitting us not only to profit by the lessons of his long and fruitful labors, but to enjoy the charm of his personal word. I thank you, Mr. Root, for what you have said, but if I have been able to render any service it has never failed to find inspiration and guidance in your achievements and counsels. (Applause.)

It is especially gratifying to me to observe the presence here of those who are devoting themselves through various societies to the cause of international good will, seeking not to inculcate a sentiment of divided allegiance, but to quicken the sense of mutual interests, of the bonds of affection, of the opportunities of a wholesome cooperation with other peoples. To be recognized as a fellow worker in that cause is the highest privilege that I could ask.

One in public life may desire others to have illusions about it, but he has none. He is quite often depressed by the feeling that the best thing he has done will never be known, although he may take comfort in the thought that that is also likely to be true of the worst. (Laughter.) He grows to be somewhat pessimistic of the future of history. He may be able to follow the line of truth through the fascinating fabric of current narrative, but who can do this without the knowledge of a participant? If contemporaneous descriptions are so incomplete, he wonders what will be the nature of the ultimate record. Doubtless, in time, authentic material will be available, but perhaps the chief ground for anxiety is that authentic material is piling up at such an appalling rate that no one can master it. If the work of the Department of State is two or three times greater than it was eleven years ago before the great war, that work is evidenced by masses of documents, which taken separately each day one may hope by untiring effort to subdue but in a long period attain an incredible and unconquerable magnitude. When I think of the telegrams, falling like snow flakes in a thick storm upon the desk of the Secretary of State, of the dispatches, the instructions, the many interviews with impressions given and received, which are a part of each day's experiences, of the study of the corps of specialists and the direction and supervision that enter into almost every phrase of these voluminous papers, of how much needs to be accurately known to appraise even a single important official act, of the distractions of prejudice, I feel that I should rather try to construe the Sherman Act than to be a historian with a conscience. (Applause.) His only chance of happiness will be that he can never know how wrong he is. The lawyer is so embarrassed by the mass of decisions pouring in upon him that he is apt to flee from his library and content himself with the assurance that he knows what the law ought to be. (Laughter.) The historian may be compelled to take refuge in his confidence in his intuitions, his appreciation of tendencies, and his assumption as to personalities and motives. The truth would seem to await a strange fate in being overwhelmed and buried by facts. If here and there through extraordinary industry it emerges, it must compete with thousands of other items before a people vexed with a multiplicity of interests. I suppose we shall have to be content with impressionism. But no one cares to think how he would look in an impressionist picture. It may indeed be more flattering than a study in detail, but he has no assurance of that.

This is rather more serious for those engaged in diplomatic intercourse than for some others. John Hay said that there are two important lines of endeavor in which men are forbidden even to allude to their success—affairs of the heart and diplomatic affairs. In doing so, he pointed out, one not only commits a vulgarity that transcends all questions of taste, but he makes all future success impossible. (Laughter.) For this reason, he observed, the diplomatic representatives of the Government must frequently suffer in silence the most outrageous imputations upon their patriotism, their intelligence, and their common honesty. He concluded that they must constantly adopt for themselves the motto of the French revolutionist, "Let my name wither rather than my country be injured." Perhaps it would be quite as patriotic and even more philosophical to conclude that the name will wither anyway (laughter), and so he might as well devote himself to the interests of his country without troubling himself about distinction in a world where the traffic is so heavy that, except for some outbreaking sin, no one will care about the numbers of individual cars other than his own. (Laughter.) Whether or not he can appeal to the verdict of history, the public officer knows that he will not be here to receive it. With good heart, he turns to his task, whether as architect planning what others may do, or as builder following the plans of others, feeling that he must find his satisfaction in the day's work, in the earnest striving to do his part worthily. If he may know that his friends whom he admires and loves believe that he has wrought with that sincere purpose, he is abundantly rewarded. (Applause.)

I know that I should not interpret the sentiment of this occasion aright, if I did not regard it as intended to emphasize not what I have done or sought to do but rather the ideal of service. And I should fail to do justice to that sentiment to my own dominant feeling if I did not attest my indebtedness to those with whom it has been my privilege to be associated in the Department of State. I believe that the imperial philosopher observed—"When thou wishest to delight thyself, think of the virtues of those who live with thee; the activity of one, the industry of another, the liberality of a third." In our desire to improve the foreign service of the United States, we have sometimes been inclined to exaggerate its defects. I wish to tell you that I consider the association with the men of our diplomatic and consular service one of the greatest privileges of my life. I wish you to appreciate their ability, their intelligence, their industry, their unqualified loyalty and fidelity. What was needed was a better organization, a fairer recompense, a reasonable opportunity for men of ability who were without independent means, a service not recruited altogether from a favored class and not treated in a manner unworthy of the great Republic. We owe to Mr. Root the great step forward which was taken in his administration in putting the consular service on a merit basis. Since that time there has been further progress culminating in the Rogers Bill recently passed under which we have a thoroughly organized foreign service, with interchangeability as between the diplomatic and consular service, with suitable provision for promotion and retirement, with more adequate compensation. I was indebted to President Harding and to President Coolidge for the opportunity to organize the Department without interference through demands for patronage, and I am happy to say that during the four years I had the privilege of serving in the Department it was organized exclusively on a merit basis. You will know what sort of a Department it was when I tell you, as I have often said, that I was the only politician in the Department. (Applause.) With our practice of sending men from the Department to the field, and calling men from the field to the Department, we maintain the most effective coordination. The men in the high posts of the Department were, and are, skilled men, who, I have no hesitancy in saying, can be compared without disadvantage to those in any foreign service. (Applause.) I think of my associates of the last four years with love and esteem—able, strong men—in a word, thoroughbreds. Everyone was "on his toes." We had no limit of hours. Still underpaid, their work known only to those who worked with them—what they did entering into the fabric for which others generally received the credit—they found joy in the work itself and in their recognition of its importance; no effort was too great to give the best possible service to our country. Honor the diplomatic and consular service of the United States. (Applause.)

I am also glad to think of the large measure of cooperation in which it was my good fortune to have a share. The American Government is a vast cooperative endeavor. It is the greatest organization in the world for preventing things from being done. (Laughter.) It can move swiftly when the essential forces work together; otherwise, it makes a noise but does not move. The fact that of nearly seventy treaties which I had the privilege of negotiating all but a half dozen have been approved by the Senate is eloquent of a cooperation of which too little is known. We talk much of the advantages of our constitutional system. I like to see its principles observed—to see the game played according to the rules. The treaty making power, in my judgment, is well lodged, and should remain as it is. It is too vast a power to entrust to the President alone. Nor would it be advisable, as it seems to me, to confide to Congress, or, in view of the differences in population and interests of the States to commit to a mere majority of the Senate, the power of the approval of treaties. But the essential cooperation can be had only by self-imposed restraints on each side. The President alone is the negotiating authority. If the Government is appropriately to deal with the delicate situations which arise in foreign affairs where the object is not humiliation and controversy but the making of agreements which will assure the benefits of peaceful intercourse, the President and his representatives must have the margin of freedom which is essential to negotiation, and there should be very grave reasons for not accepting the result. To equip the negotiating authority with the best available talent, to avoid embarrassing it during the period of negotiations, to sustain so far as possible its prestige, that, in the long run, is the line of security and international influence. (Applause.)

But when I spoke of cooperation I did not intend to refer simply to cooperation within the Government. If we can look back with any degree of satisfaction over the seven years since the Armistice, it is because of the unofficial cooperation of American ability and financial strength in the resuscitation of enterprise. (Applause.) It is pleasant to think that American assistance of this practical sort has never been lacking, and I believe we have had the most effective cooperation that was possible. The currents of American helpfulness cannot be dammed up. If you cut off a channel here, a new channel will open there. These are currents that continually grow more powerful and you cannot command economic forces to stand still. I am happy to think that the

Government at a critical time was able to keep open the avenue for the expert aid of impartial American ability in the necessary post-war reconstruction.

This is not a fitting time to speak of our foreign policies—the declaration of our policies now belongs to others—but I may venture to say that our most important service will be found not so much in any specific act as in the spirit in which we conduct our foreign relations. We have no reason for apprehension as to our security. We are happily free from menace or challenge. Our people harbor no thought of aggression upon any other. Any policy which could deserve such a characterization would be instantly and overwhelmingly condemned. We are free from old grudges and the animosities that thrive on old grievances and undying fear. If any nation on earth can conduct its foreign affairs in a spirit of kindliness, of esteem, of regard for the feelings of others, it is the United States. Nowhere is there less reason for the imprudence of jingoism; nowhere is there less excuse for that pseudo-patriotism which seeks to make truculence do duty for intelligent protection of national interests. Our greatest interest is international friendships. National prestige may be associated with power, but it is never heightened by a brutal assertion of it. Indeed, our national prestige is inseparably connected with the demonstration of our sense of justice. It may often be difficult to see where justice lies, but it ought not to be difficult to give assurance of our sincerity in seeking it. Our proper influence in the western hemisphere, our efforts to promote the peaceful settlement of controversies and to aid in healing old grievances, depend for their success on the conviction that we are endeavoring to be absolutely fair. The economic contributions which we cannot withhold are thrice welcome when it is clear that they are not the cover of intrigue but proceed from a people naturally seeking the advantages of an increasing trade, but fair minded and desirous of contributing to a mutual prosperity.

What we desire of the Government in our foreign relations, whether it is the representative of the President in his constant contacts and negotiations, or the Senate as a branch of the treaty making power, or Congress as it legislates upon matters touching foreign interests, is that the friendly spirit of the American people shall not be belied, and that our just rights, however tenaciously we may hold them, shall always be maintained in the manner of a true gentleman unafraid who can hold his own without offense. (Applause.)

I was glad to hear Mr. Root say what he did with regard to the Permanent Court of International Justice. We cannot profess allegiance to the cause of international justice without maintaining the institutions of international justice. We have now an opportunity without sacrificing any national interest to support and buttress the new institution to maintain the supremacy of law among the nations. I trust that we shall not miss that opportunity by failing to support the Permanent Court of International Justice. When other nations seek to promote the judicial settlement of international disputes, how can we afford to count ourselves out? We are happy to think that after long years peoples are emerging from the black night of hatred and distrust into a new day of reason and accord. But controversies will not be lacking. Economic, racial and national interests will inevitably clash. Our chief contribution to peace will not be in demands for formulas, in resolutions of mass meetings, in documents and declarations calling for the outlawry of war, but in the exhibition of a temperate disposition, in self restraint manifested in the controversies that concern us, in the absence of threatening gestures, in the readiness to support the government seeking reasonable solutions of difficult questions.

There is nothing that I can say in response to what has been uttered here. It is a great privilege to serve the American people; it is a higher privilege to seek to interpret the generous sentiments which for the most part animate them. (Applause.)

RESPONSE TO PRESENTATION OF THE JOHN FRITZ MEDAL[1]

JOHN F. STEVENS

Mr. Stevens delivered this address at the formal presentation of the John Fritz Gold Medal, New York, Mar. 23, 1925. John R. Freeman presided at the ceremony. Speakers were Ralph Budd, President, Great Northern Railway, Roland Sletor Morris, former United States Ambassador to Japan, and Charles Frederick Rand, Chairman of the Board of Award, who made the formal speech of presentation.

Mr. Rand: Mr. John F. Stevens, Doctor of Laws, Honorary Member of the American Society of Civil Engineers, recipient of the Distinguished Service Medal of the United States, Officer of the Legion of Honor of France, of the Order of the Rising Sun of Japan, of the Order of the Golden Grain of China, of the Order of the Striped Tiger of China, and of the War Cross of the Republic of Czechoslovakia, by the unanimous voice of the John Fritz Medal Board of Award, representing the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, in recognition of your distinguished services as a Civil Engineer, particularly in connection with the Panama Canal, the building of railroads, and as Administrator of the Chinese Eastern Railway and of the Trans-Siberian Railway, I have the honor and the great pleasure to deliver to you this gold medal.

Mr. Stevens: It is a wise provision that the etiquette of this occasion requires that the Medalist shall say not much, and that of little consequence. About all that is required of him is that he shall look pretty.[2] In both of these important particulars I feel that I am fully qualified.

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[2] Mr. Stevens alluded to the numerous decorations from governments, which he was wearing, in accordance with the custom of these presentation ceremonies.

I have been sitting here this evening in a daze, wondering if this ceremony were not an iridescent dream, from which I would shortly awaken to the "cold gray light of the morning after." But the concrete evidence which I hold here is the symbol and visible token of the great honor which has been bestowed upon me, and which marks the very zenith of my professional life.

I am somewhat in the condition of the gentleman who came into conflict with the law, who upon being asked whether he was guilty or not guilty, replied that he could not tell until he had heard what the lawyers had to say. But since listening to the silver tongued advocates who have preceded me, one must be inclined to the opinion that they agree with the decision of the four great Engineering bodies, that if I were not wholly guilty in certain cases which demanded considerable ability and involved great responsibility, I was, at least, seriously implicated. Time, the great Adjuster, can always be trusted to render a just verdict, or to reverse an unjust one.

It is now more than a half-century, fifty-four years to be exact, since I, a raw lad, without money, influential friends or technical training (I had never heard the last expression), cast my hat into the ring and decided upon an engineering career. Just why I did so I do not know, for other than perhaps a natural aptitude for higher mathematics and a very decided tendency toward wanderlust, which still abides with me, there were no valid reasons why I should have made such a selection for my life work; but I did, and have never regretted it, least of all to-night.

I very soon realized that I must overcome as far and as speedily as possible the serious handicap of the lack of a technical education, and so, for many weary years, my Bible was the works, written on paper and in timber, iron and stone, of those great men who have long since gone to their reward, who laid so well the foundation of modern American engineering practice, which for boldness and fertility of conception and thoroughness of execution, has no peer in the world.

Many times during that long period when a fairly successful career looked so uncertain, I asked myself: "Is it worth while? Why not just drift along as so many are doing, for the result will be the same in the end?"

But I think that I was fortunate in that for years my work took me away from the petty trumpery of civilization into the wide open spaces and among the mountains, where one lives close to Nature, who is the great Comforter and Mother of us all and who is ever ready to whisper a word of cheer to the despondent.

As an American poet sang of Agassiz:

> Whenever the way seemed long,
>   Or the heart began to fail,
> She sang a more wonderful song,
>   Or told a more marvelous tale.

The answer to the old-time discouragements is made here to-night; it is full and complete. I would that I had the brain and the tongue to give proper expression to my heartfelt appreciation of it and of what it all means to me.

Whatever successes I have been permitted to achieve have been largely due to the able work of the many fine men upon whom I have relied for advice and assistance, and I am happy to know that of all those who are now living there is not one that I cannot call a friend.

I have thought that perhaps this honor which has come to me may be greater than my deserts would justify, but I bow to the decision of the majority and am content.

And so, friends, as the shadows of life lengthen along my pathway and I go on to my appointed time and place, I shall go with the feeling that while material wealth has passed me by, I have gained something which money cannot purchase and which is the visible evidence that I have not lived wholly in vain and that I can claim comradeship with those great minds who have previously been so signally honored at this place.

Mr. Chairman and Members of the Board: Through you I thank the great body of Engineers for the wonderful distinction which it has conferred upon me, and I thank all of my friends here to-night for the compliment of their attendance, for which I am most grateful.

ADDRESS OF FAREWELL[1]

EDWARD D. DUFFIELD

Mr. Duffield, President of the Prudential Insurance Company of America, delivered this address in closing the 1925 Biennial Conference of Superintendents, Ordinary Managers, and Mortgage Loan Correspondents, Newark, N. J.

GENTLEMEN: If I fail to keep my promise as to the time of adjournment, I will be solely to blame. We have now concluded the list of speakers, and there are some things that I want to speak to you about before the meeting actually adjourns. I am rather sorry that I made that promise as to the hour of adjournment, because there are quite a number of things that I would like to talk about, and I have no doubt that before you are out of this building and certainly before you are out of town there will be a number of other things that I will wish I had thought of and spoken to you about here this afternoon. However, having made my agreement, I will endeavor to live up to it.

I want to say, in the first place, a word or two to the loan correspondents that are here. I appreciate that they have sat here through two rather long sessions where we have been discussing matters which applied more or less to the technical business of the production of life insurance. We appreciate very much the interest that they have shown in the business of life insurance in coming here and joining with us in these business meetings. I am deeply regretful that Mr. Woodruff's illness has prevented him from being here this afternoon, because he would have outlined to you very much better than I can and illustrated by lantern slides what seems to me is the real vital interest that The Prudential has in this business of making real estate loans and which the real estate loaning agencies are aiding us in so admirably. I am not going to read you, as I thought of doing, the figures, the extent of the loans which The Prudential made last year. I am not going to give you figures showing the increase in our assets of that form of security. You will find it all in the company's statement, which will subsequently be placed in your hands. But I want to mention one fact, and that is that during the year these loaning agents so carefully loaned the funds of The Prudential that we did not sustain the loss of a single dollar on a single piece of property. [Applause.] And I want to say a word in regard to a function that I think applies to all of us, whether we are in the loaning branch or whether we are in the production branch, and that is I think that in this business of loaning our money on real estate we have to take a somewhat broader vision as to where our duty lies. Of course, our primary duty in investing the funds of a company engaged in the business of life insurance is to our policyholders; that the security shall be adequate, that the return shall be fair. But in a company the size of ours there is, I think, a broader duty, and when the primary duty has been discharged, the broader duty bears in upon us to so invest those funds as will do the widest amount of public good. Now, I do not know of any better business in which those having funds for investment can be found than that of aiding the building of homes and providing accommodations for families. One of the greatest sources of social discontent is that of improper and unsanitary housing, which occurs in our large cities. We are doing our best to meet this situation. We are trying to make it easier, year by year, for the man who wants to build a home to do so. We are going to try and see whether we can develop a system under which we can make loans during the processes of construction with safety. [Applause.] We are going to try to make it easy for the honest, upright American citizen who wants some help in order to build a home. We are going to make it just as easy for that man as we can, having due regard to the fact that we are the trustees of other people's money. Furthermore, it seems to me we should give consideration to the fact that there are instrumentalities and agencies which are engaged in endeavoring to wipe out the slums that now disgrace the great cities of the country and substitute therefor decent housing facilities. I say that The Prudential ought to get back of every such movement. [Applause.]

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[1] By permission of the author.

And I say that one of the missions of this great company of ours is to make America a better America, and you can not do anything, in my opinion, that will more surely aid in this direction than to give people decent places in which to live. You can not expect a decent citizenry if you are going to house them under conditions which do exist, I regret to say, in some of the larger cities of our country. Now the Real Estate Loan Department is sympathetic with these movements. We may not be able to aid them all. They may be based on an unsound financial scheme. They may be uneconomic. But I want to say here and now that the spirit is here to aid those enterprises where it can be done with safety and security to our policyholders. [Applause.]

Now, gentlemen, there is one other thing that I want to talk about. We have heard a good deal the last day or two with regard to various matters. Somehow or other, things have seemed to branch out along lines, first, of economic and domestic affairs and then of some action in connection with foreign affairs. The Prudential has never sought to direct the political action of any individual associated with it, and I hope that it never will. It certainly never will as long as I have anything to say in regard to its affairs. [Applause.] But I do say that what Mr. Austin said this afternoon ought to come home to each one of us. After all, we are each individual American citizens, and if there are certain things being done that shouldn't be done in the waste of public money, it is your duty and mine to see to it that public sentiment is created to support an economical administration of public affairs; and if there are certain things that are not being done that we individually think should be done in connection with either our domestic or foreign affairs, we ought to create a public sentiment that will be heard in the halls of Congress or in the legislatures of the states or in the aldermanic chambers of the city halls. And I say to you that you ought to take from this meeting an inspiration from the speeches that you have heard, that you ought to give careful consideration to the important matters touched on, and to utilize individually the power that you can wield toward the accomplishment of the things desired. These words ought not to have fallen upon dull ears; they ought not to have fallen upon ears so unattuned that they will not create corresponding action to meet that which it is suggested ought to be done.

Now, gentlemen, there is one other subject that has not been touched on, and I have not time to deal with it at any length. But I want to suggest to you that if there is one thing in this country at the present time which requires the thoughtful consideration of every American citizen, it is the tremendous increase in the violation of law. [Applause.] We are fast becoming a nation of lawbreakers, and the worst of it is not that crimes are being committed, it is that nothing is being done about it. The worst of the situation is the fact that we are treating with indifference the violation of the laws of this land, and it is fast becoming a jest and a byword among our people. Laws are made and they are not observed. Now, it seems to me that we may differ on any question discussed, but there is one question that as

American citizens we can not differ on. [Applause.] I propose to send to the field within a day or two a suggestion that the usual Prudential celebration of Lincoln's and Washington's birthdays be held, and in the holding of that celebration I suggest that it be devoted to the awakening among the people of the community in which you are the Prudential representatives a recognition of the fact that it is about time that the honest, decent, God-fearing American citizen made himself heard on the question of the observance of the laws of the land. [Applause.] And if you agree with me on that proposition I should like at this time an adoption of a resolution by this convention that some action such as I have indicated be taken at these annual meetings. Do I hear any resolution?

Mr. Keer: I know that we all concur in the splendid remarks that our president just made, and in view of that I would like to offer for the consideration of this splendid meeting here today the following resolution:

> *Be it Resolved*, that we heartily concur in the sentiments expressed by our president, Mr. Edward D. Duffield, in advocating more respect for law, and we pledge our earnest support to such views in our respective communities.

[The adoption of the resolution was moved, seconded and unanimously adopted.]

Mr. Duffield: Gentlemen: I trust that in February, when these Prudential meetings are held, you will secure either local speakers or by yourselves impress upon the staff that we should as Prudential men take a forward step in this movement to secure to the American people the observance of the laws essential for the perpetuity of our institutions. [Applause.]

There are a number of other things that I would like to discuss with you. The hour, however, is late, and I ought not to take your time. But I can not let this meeting adjourn without bringing one matter to your thought, and that is, those who are not with us at this meeting and were with us when our last meeting was held. We meet under the shadow of the death of a man who was near and dear to you all. And as I looked over the list of those who had gone out from our ranks, both in the field and in the home office, since the two years ago that we were privileged to meet here together, I was shocked at their number. It seemed as though we had lost those leaders who had been accustomed in the days gone by to take a prominent part in all our gatherings. I can not let this meeting adjourn without reading to you their names, in order that they may be entered in the record of the proceedings of this convention, and I ask you to stand in respect to their memories while I read the list—every man a good Prudential man, every man a loyal brother of every other Prudential man:

Among the Ordinary managers are
  E. G. Thelin, of Baltimore
  Joseph Herzberg, of Milwaukee

Among the Industrial superintendents are
  George Charron, of Ithaca
  William A. Harrison, of Philadelphia
  Joseph Plotz, of Brooklyn
  Francis B. Reilly, of Brooklyn
  Frederick W. Houck, of Cleveland
  Alva D. Wallace, of Toledo
  James H. Hughes, of Indianapolis
  Adolf Chobotsky, of New York
  C. R. Medsker, of Indianapolis

And then there were
  James Reid, Superintendent Unattached
  Frank W. Gifford, Special Inspector
  Fred W. Tasney, Vice President
  Valentine Riker, Assistant Secretary
  James E. Coombes, Manager of the Art Department
  Joseph Atkinson, former Editor of *The Prudential Weekly Record*

Gentlemen, if time would permit, I would like to pay a tribute to each one of these men. The very reading of their names recalls them to us with vividness. We can almost see them here in our midst. They have gone from us, but the work that they sought to do and the work that you and I are commissioned to do remain. So, like good soldiers, we will tighten up the ranks and proceed forward.

I don't think I can express to you all that is in my heart at this time. I would like to say to you in a personal way what I feel for each one of you, and what I am proud to think that possibly each one of you feels for me. And yet it is difficult to give expression to those thoughts that are deepest in one's heart. Two years ago we met here, and I had but recently been honored with the position that I hold. I realized at that time the difficulties of endeavoring to act as the chief executive of an organization as wide as this and with the importance of this and with the responsibility that The Prudential has. I realized then and I said to you then that it would be impossible for me to accomplish the results that you and I hoped for unless I had the earnest, cordial, friendly support of Prudential men. That you have given it to me during these past two years I can not question. I realize full well here in the home office what it has meant to have a field force loyal, friendly, earnest and devoted. And so, today, for the fact that you have made possible achievement, for the fact that you have given unwavering support to every principle which we have suggested for adoption, that you have loyally upheld the highest honor of this company of ours, today I come to you and extend not only the thanks of this your company, but my own appreciation, not as your executive, but as your friend. [Great applause.]

I hesitate to say good-by. I wish it were possible to prolong this hour, because, gentlemen, I realize the fact that these associations of ours in an organization the size of ours are affected by the fact that we are scattered far from one another and only too infrequently are able to gather together. And yet, throughout this organization of Prudential men there does run a chord of sympathy that extends from the center to the circumference of the circle. Throughout these ranks of Prudential men, scattered all over this broad land to the very outposts, there is a feeling of friendly interest that draws hearts close together and awakens in each one a zeal not for his own, but for his brother's success. [Applause.] We were founded as The Prudential Friendly Society; as the Prudential friendly society we will ever continue. [Applause.] So, my friends, realizing fully the inadequacy of what I would say to you and what I have been able to say to you, I can only say good-by and God bless you. [Applause and cheers.]

VIII

THE AFTER-DINNER SPEECH

ADDRESS AT NATIONAL RIVERS AND HARBORS CONGRESS[1]

STRICKLAND W. GILLILAN

Mr. Gillilan, well-known humorist, gave this speech as the closing number of the banquet session of the National Rivers and Harbors Congress, Washington, D. C., Dec. 7, 1927. The toastmistress was Mrs. Izetta Jewel Miller. Principal speakers on the program preceding Mr. Gillilan were Senator Frank B. Willis, of Ohio (since deceased), who spoke on Alaska, Miss Grace E. Frysinger, Federal Supervisor, Education for Farm Women, Department of Agriculture, and H. H. Blee, Senior Business Specialist, Aeronautics Branch, Department of Commerce. Mr. Gillilan alludes to remarks by these and other speakers in the course of his address.

TOASTMISTRESS, INTREPID SURVIVORS OF THE RELENTLESS PROGRAM: I don't think I am needed to close this meeting. I think if we leave it alone a little bit, it will attend to that itself. (Laughter.) You have had enough entertainment for two or three evenings, and I feel absolutely superfluous.

I know Secretary Hoover is somewhere just fretting his heart out because he can't be here (Laughter) to have one more speech. But I am very glad indeed to be here and look into your faces. God knows there are faces here that ought to be looked into once in a while. (Laughter.) I am glad it is my job.

This statement I am going to make now is going to be a very bitter disappointment to you, but it must be done. As my father use to say when he led me to the woodshed with a barrel stave in one hand and me in the other, "It is going to hurt you a great deal more than it hurts me." (Laughter.) I am not going to give you any information. I am not going to give you any information about Alaska; God forbid! As for agriculture, I know too much about it to speak about it in public. (Laughter.) I lived on a farm until I became so familiar with it that I felt the contempt which comes from familiarity. (Laughter.) I rather think I was the originator, at least I was always said to have been the originator, of a back-to-the-farm movement. I turned mine on ours at the first opportunity. (Laughter.) I rather think that when I did this and gave up the plow for the pen, literature's loss was agriculture's gain. (Laughter.)

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[1] By permission of the author. Reprinted from the *Proceedings* of the twenty-third convention of the National Rivers and Harbors Congress, Dec. 7 and 8, 1927.

I attended a meeting here today, and I have been thinking about the two meetings. I do not want to say this, though, I want to complement your Secretary. You have a Secretary to be proud of in every way, a man of wonderful accomplishment and industry and judgment, and I want to commend about the foxiest thing I ever knew a man to do, in your Secretary. He left my name off the program because he wanted some of you to stay. (Laughter.) The news seemed to leak out. Quite a number of them left. (Laughter.)

I attended a meeting here today where there were representatives of all the nations in the world that have a representative in Washington. It was at the Rotary luncheon, and all the diplomats and ambassadors were lined up there. With a tendency I have always had to try to do something to start something, that kind of impulse that always wanted to make me throw an egg into an electric fan, I yearned to ask who started the war. (Laughter.) Then I had another man picked out to ask, after I was killed, who won it. (Laughter.) I could see great possibilities for slaughter if I started something of that kind. It made me think of the Irishman who listened to the priest discourse on the subject of the Judgment Day. After the sermon he said, "Father, about the Judgment Day; you have started me thinking about something. Do I understand you right? Did you say that all the nations and all the peoples would be there at that time?" He said, "Yes, every one of them." "The Germans and the English and the Irish, all kinds of Irish, the Black and Tans and all the rest of them?" "Yes, all of them." "All right. That is all I wanted to know." "Why did you ask?" "I was just going to say there wouldn't be much judging done that first day." (Laughter.)

This rivers and harbors business always interested me very deeply at long range, and I have noticed, as you perhaps have noticed, a general tendency of the human to gravitate toward the level of the water, not for drinking purposes always, but to gravitate towards water. I don't know whether that is governed by the fact that about 98 percent —or something of that kind—of the human anatomy is composed of water, and I suppose, after one of them gets water on the brain, it is practically 100 percent. But human beings have a tendency to gravitate toward the water level. When a man is a natural-born riparian, he stays that way until he is drowned; you can't cure him of it. He wouldn't live anywhere else. I know people along the Ohio River—

I came from Ohio, as did Senator Willis and everybody else who could (Laughter)—who would be washed out of their homes every consecutive springtime. They looked forward to it. They wouldn't live 30 feet higher up on the hillside if you gave them a lot and a house. They like to be washed out.

They would get washed about nine miles down the river—the man would go down on the chicken coop accompanied by his wife on the piano—be picked up in a ragweed patch somewhere, look around and see where they were, catch the first flivver back toward home, dip the catfish out of the baby's cradle and go on living in the same spot. (Laughter.) That is merely one of the tendencies of humanity that you can't account for in any way, and there is no use to apologize for it.

As I said in the beginning, and I want to keep warning you of this fact, I am not going to give you any information of any kind, and I am going to be very careful that I do not give you information. I am going to exercise the greatest possible care that I may not inform you on any subject whatsoever.

There are certain people who, when they go anywhere, are expected to get up and make some sort of vocal effort. Sometimes this talking gets you into trouble and very rarely keeping your mouth shut gets you into trouble; far rarer is that than the former. I don't like a lot of oratory. I never was guilty of oratory in my life, and I hope I may never be. This country is particularly peaceful at this time. The two great sources of suspense have been lifted, and we are at peace, mental peace, among ourselves. Ford lifted one of the suspenses the other day when he showed us the car, and yesterday the remainder of the country's turmoil was removed when Coolidge spilled the third term oil and elaborated on that fatal word "choose." So that suspense also is over at this time.

I have the finest sort of reason in the world for not giving you information. I don't know anything on the face of the earth to tell you. I don't want this known, because if this became generally bruited about, I would be out of business. The fact is I don't know any more than you people do. (Laughter.)

I have told you that to show you what an awful fix I am in. As I said, I am going to be very careful indeed not to give you information. I said a little bit ago that sometimes talking gets you into trouble and very rarely keeping still gets you into trouble. I know of a case where keeping still got an individual into trouble.

There was an Irishman who had always been exceedingly anxious to own a parrot, "one of thim talking birds." He didn't have enough money to buy a good bird and wouldn't have one until he could get a good one. When he became a little more plethoric in the pocketbook, along in life, he went to the bird store and was ready for the purchase. He said, "I want one of thim talking birds, and I want a good one. I don't care about the price; it is the bird I want."

The birdman said, "You came to the right place at the right time. We got a shipment in from Central America today. We have a bird that is a wonder; he talks nine languages." He said, "That is the bird. Send it out and send the bill." The Irishman hurried home early. He said to his wife, "How is the bird?" She said, "I don't know; he ain't done yet." (Laughter.) He said, "You don't mean to say you cooked that bird! He was an expensive bird; he spoke nine languages." She said, "If he was so smart, why didn't he say something?" (Laughter.)

When it comes to care in avoiding saying anything, I have taken as my example a man I heard of out in Indiana some time ago. The game warden in Indiana found that somebody in Rush County had been gigging for fish through the ice, contrary to law. He rounded up the one hard nut in the neighborhood that they blamed everything on to see whether he was guilty or not. They called in the neighbors to testify against this fellow and the neighbors were afraid to testify against him for fear he might do them harm—hamstring a cow or burn a barn or something like that.

One man was on the witness stand and the squire asked, "Did you on the 16th of January see a hole in the ice and a pool above Wilson's dam?"

"Yeah."

"Could you tell from the appearance of the hole and the surrounding particles of ice whether it was made recently or some time ago?"

He said, "I couldn't tell, Squire, whether that was a this-winter's or a last-winter's hole in the ice." (Laughter.)

In the matter of diplomacy and being careful about what you say, I think the high water mark in diplomacy was hit by the colored man in the South, named Rastus. He was before Judge Brown on a charge of having beaten his wife, Mandy. Mandy sat there with the side of her head bashed in, covered with adhesive tape. Judge Brown came out and took his seat and looked them over and said. "It looks as if you have been a little bit rough with Mandy."

Rastus said, "Yes, Judge Brown, certainly I was rude to that woman. I was rude to her, but she done give me plenty of provocation." "What was the provocation?"

"Well, Judge Brown, you know I'se a hard working nigger. I done mowed lawn for you all and you knows when I works I works. I had been out digging in the ditch all day. I comes in at supper time and there sits that woman and there ain't one bite of vittles in the house."

"Then you hit her." "No, Judge, I ain't hit her yit. I said, 'Look here, Mandy, that ain't no way for a woman to treat her man. You ain't got no vittles for me to eat. You take this four bits and buy me some po'k chops.' I gave her the money in her hand. She was gone I reckon 20 minutes or half an hour and comes back and, Jedge, she ain't got no vittles at all; she is full of gin."

"Then you hit her." "No, Judge, I ain't hit her yit. I say, 'Look heah, Mandy, that ain't no way to treat your man. I comes home hungry and you ain't got nothing for me to eat. I sends you out with de cash money in yoh hand to buy the vittles. I ain't going to stand this no more. This has got to be settled. We have come to the parting of the ways, to a showdown, we are going before the coht.' She say, 'You ain't gwine to git me before that cockeyed, slab-sided, slue-footed Jedge Brown, is yuh?' Then Jedge, I hit her." (Laughter.)

I want to express my appreciation of the fact that your Toastmistress in introducing me was not laboring under the hallucination that she was the orator of the evening herself. You know sometimes the toastmaster makes so much longer a speech than the person introduced that there is a justifiable doubt in the mind of the audience which one of those two eloquent birds was it. You know that happened one day with Mr. Bryan—Mr. William Jennings Bryan; some of you may have heard of him. Mr. Bryan was out on a Chautauqua Circuit—don't worry about that; he wasn't "out" much! He was on the Chautauqua Circuit. It was Mr. Bryan's peculiar habit, during the last few years of his earthly journey, to spend three or four hours talking to an audience on some subject he knew (or suspected) something about, and then he would change abruptly and begin talking about evolution. Mr. Bryan absolved the monkeys from a very heavy and scandalous accusation. There isn't any question that the monkeys lost their best friend a little over two years ago.

On one occasion Mr. Bryan had to leave town at 8.45 P. M. to make the next day's appointment. They put on a local ambitious Democratic politician to introduce him. He introduced him until half past eight. That left Mr. Bryan 15 minutes to do his stuff and catch his train. In the brevity of time he had to cut out the monkey business but he made the train. After he had gone, somebody asked somebody else, "What did you think of Bryan's lecture?"

The other party said, "It was all right; and that old, bald-headed guy who spoke last wasn't so rotten, either." (Laughter.)

Last year right here in Washington, deceased, I was at a banquet. There were 800 or 900 big, successful business men from all over America present. They had been in convention for four days with three sessions per day, morning, afternoon and night. They had ended this orgy of conferences, this debauch of meetings, with a banquet at this very hotel, in this very room. They had secured somewhere, I don't know where on earth they found him, a toastmaster. He was a curly wolf for oratory. He put in half an hour at the beginning of this meeting telling these 800 or 900 big, successful business men from all over America, who had been in convention for four days, with three sessions per day, what they were in Washington for! (Laughter.) It would have been a dirty trick if he had let them go back home and never know what they came for. He knew and he was a good sport and he could conceal it from them no longer, so he told them what they were in Washington for.

Having relieved their suspense and satisfied their curiosity on that thing that had been puzzling them all the time they were in Washington, he proceeded to introduce speakers. He would put in 20 minutes introducing a speaker and, when the speaker got through his few faltering and utterly negligible remarks, this fellow in words of one syllable, for 15 minutes would explain to the assembled morons what the man meant. (Laughter.)

He was a helper. He was a Boy Scout doing three years' good deeds in one evening. When he finally got to me, when he dragged me out by the hair of the head, it was half past twelve o'clock. The crowd was there; they had stayed. They were not sleep-walkers; they hadn't gone anywhere. Something had to be done to galvanize those men into some semblance of human activity. I told them that something there that night reminded me very vividly of something my late friend, James Whitcomb Riley, the Hoosier poet, said one time when we were talking about a friend of his. That word "friend" is an elastic term. It can cover a multitude of sins, as well as other things. It is perfectly possible for a good friend to do us more harm than a whole platoon of organized enemies. He means well, but he is such a boob he spills the beans every time he says a word. He means well, but he is unlucky.

You know there is such a thing in the world as bad luck. I don't care what Frank Crane and the other high priests of hooey tell you, there are bad luck occurrences we can't manage. I know a man in

Ohio who had a tree that had been dead for 30 years and had resisted the gales for that length of time, winter and summer. One perfectly still day, when he went by, it fell on him.

This friend that Riley was talking about meant well, but he had been unlucky. He had written something that was intended to be beautifully complimentary of Mr. Riley, and he had inserted something that got everybody laughing at Mr. Riley instead of with him. It hurt the sensitive old poet very deeply and he almost had tears in his voice as he told me about it. He said, "That fellow is a pale gray ass."

I said, "What do you mean by a pale gray ass?" He said, "One that has been an ass a long time." (Laughter.)

I felt toward that toastmaster that night very much as the English parishioner must have felt towards his rector. This was a rector so deeply interested in all his parish, in every little thing, that his ministrations came to seem nosey, meddling, rather than service. It got on the nerves of some of his flock. One of these members of the flock that had got to feeling that way about it was bitten one day by a dog that had been showing premonitory symptoms of rabies. The preacher heard of it and ran around to the house to see him. He was told by his wife the man had gone to the office. He followed to the office and found the man busily writing as fast as he could write. He said, "You have come to the office after having been bitten by a mad dog?"

He said, "I had some writing I felt I must do under the circumstances."

"I see, you are writing your will."

He said, "No, I'm not. I am writing the names of people I am going to bite when I go mad." (Laughter.)

I said I wasn't going to give you information. I am not going to give you information for the reason I gave you—the basic, underlying reason—that I know nothing whatever to tell you. There is another reason I don't give you information. That isn't what people need most. You and I are vastly in need of more information. We are vastly in need of more intelligence, but neither one of those two needs, great as they are, is the crying need of the human race; the crying, imperative need of the human race is, and always has been, the inclination to use the intelligence it has, to take advantage of the knowledge that it already has in its possession, or can find within easy reach, and to follow the ideals in which it is letter perfect when it comes to reciting them. You know here was a farmer—a farmer, I will elucidate here (you may have heard of them) is one of those people who lives out in the country where the air is always pure because they sleep with the windows closed—who was approached by a man who wanted him to subscribe for *Farm Life*. He said, "What would I subscribe for that for?"

"So you will know how to farm better."

"I don't farm half as good as I know now." (Laughter.)

The man hit the crux of the whole situation for the entire human race. He "said a mouthful." He confessed for all of us when he made that potent statement. None of us does anything half as well as we know how. Most of us die of exhaustion before we get our second wind. We don't know what it is to extend ourselves except under circumstances where there is an absolute debacle or threat of an imminent debacle.

It always reminds me of a little boy in school who was writing a composition. He didn't want to write a composition. No boy who has his health wants to write a composition. He was writing a composition because circumstances had arisen which made him think that was the better of one or two other courses he might pursue in the matter. He thought he would write about animals. All boys like animals. He thought if he wrote about animals maybe he could stand the story himself. He wrote about a turtle and had an alligator chasing it. The situation he built up had him interested. He had the alligator chasing a turtle across a lagoon. The little turtle was all right while they were in clear water. He was a regular Trudy Ederle without axle grease. When he got to land, that was something else again; road clearance wasn't very high and his pan dragged. The alligator was gaining on him rapidly. There the alligator was, with his mouth open as wide as a barn door. The turtle gave one look and then climbed a tree and got away.

The teacher said, "Hold everything! You have forgot all the natural history I had crammed into you. Mud turtles can't climb trees!"

The boy said, "This one had to." (Laughter.)

I think we are all a lot of mud turtles in the woods, and we could climb the trees if something got after us hard enough. We don't know what we can do until we try. Most of our thinking is done by ear. If a phrase sounds all right, that is a fact. One reason I don't attempt to hand out facts is I don't know what they are. I don't know how long they are going to stay that way. The real humorists in the world are not people of my label; the real humorists of the word, whose labors are cumulatively funny, screamingly more so as the years go by, are the scientists and statisticians. Those are the funny folks. Their stuff isn't funny when they write it, but they put it away in a volume and let it stay a generation or two, and then somebody picks it up and screams with laughter because the world has been busy ever since finding out what little truth there was in all of it and what fallacy overbalanced everything else in it.

There is a great wave of loose statements we call facts that passes over every generation. Time gives opportunity to investigate these facts, and finally the little sediment of actual and lasting fact there is in it all. That is the way the world progresses.

You know facts change so. It was only a generation or so ago that everybody positively knew tomatoes were rank poison. They said, "Eat them and they will kill you." The fact now is they are not poison, but before it was a fact; everybody knew it. If everybody knows a thing, it is a fact, isn't it? An eel that has just had a bath in olive oil is a non-skid proposition compared to a fact. I wouldn't deal with anything so transient as facts are. I am afraid of them. They are treacherous.

We are in the habit of swallowing things, hook, line and sinker, because they sound all right. Most of our old adages won't stand the acid test. For instance, the old adage very familiar to you (McGuffy thought it was worth a whole lesson in the Fourth Reader), "Knowledge is power," sounds big in an empty barrel or through a microphone, but it hasn't any sense. There isn't a word of truth in it, not a scintilla; as the weather man would say, not a trace. Knowledge is not power any more than a can of gasoline is an automobile. It is something with which to produce power under the right conditions, but it is not in itself power by any manner of means.

To show you how knowledge by application can be converted into power, you know the story of the man during the recent war. There was a factory making some kind of a war baby. I don't know what it was; it doesn't make any difference. It was being made on a Government contract on a "cost plus" basis. The cost wasn't so much, but the plus! (Laughter.) Half of the people on that factory's pay roll are wondering yet where the plant was. But they were minting money. One day the machinery in the plant died on them. Nothing had broken; they didn't see why it should stop. They called in the wise-crackers and smart Alecs, fellows who knew everything—until you pinned them down and found there wasn't a thing in the world they did know.

The machine bawled them out and told them where to get off. Then they sent for an expert. You know the definition of an expert is "an ordinary person away from home." In most cases that definition is pathetically accurate; in this case it was not. The man didn't look like much, but that isn't unusual; it is two men's job to look important and be important. The fellow who looks important is so busy looking that way he hasn't time to amount to much, and the fellow who is important is so busy being that way he hasn't time to pay attention to his looks.

This fellow looked like something the cat had brought in in a careless moment. He made a few examinations around there and experimented a little bit, and then asked for a 4-pound hammer. Somebody brought it to him. He picked out one spot in the housing of one gear, gave it a wallop with the hammer, and said, "Punch the button." They punched the button, and the machinery went buzzing away as if there had never been a skip in its rhythm. They went back to coining money. A few days later there was a rift in the lute. (Spell that any way you want to; I told you it was a Government contract.) The man sent a bill, "For starting the plant, $500." The boss said, "That man ought to have a horse. Jesse James had one. Make him itemize this bill."

Three days later came an itemized bill: "For hitting with a hammer, $1; for knowing where to hit, $499." (Laughter.)

I am going to quit, but not all of a sudden. Don't let a wild thrill of joy run through you. I am not going to quit instantly. I am going to quit gradually. I am going to take this and dwindle it down. I see looks of incredulity. I see those who think, "Surely he can't dwindle that any from where he has it now." (Laughter.) But watch me; I wield a mean dwindle.

It is a great temptation to me to talk as long as anybody shows symptoms of listening. I don't believe you are all listening. I don't expect any human being to do that steadily. I know enough about human nature, from having lived among some of it for a good while, to believe it isn't possible for any human being to concentrate 100 percent on anything outside of himself, because he is so busy concentrating on his own affairs—if he doesn't concentrate, who will?—in order to make as good as he can in the world that he can't be expected to concentrate utterly on anything outside of himself. Did you ever notice when you have been to Rochester, Minn., or wherever you go to have your fancy interior carving done, and come home and stop somebody on the street to tell him all about the operation, omitting nothing, he will stand there. But do you think he is listening? He is not listening;

he is waiting. (Laughter.) He is waiting for you to shut up so he can give you his own organ recital. (Laughter.)

Some time ago I had an object lesson in the matter of inattention which seemed like attention that I shall never forget. I had a friend who lived in Pittsburgh. He was a good story teller; he had to be—he was claim adjuster for the American Sheet Steel Company. One Sunday this friend of mine, this story-telling raconteur, was visiting at a friend's house in Apollo, Pa. He was sitting out in the yard, near the Concord grape arbor, under a Rambo apple tree, in an ancient split-bottom rocking chair and holding the 4-year-old daughter of the family on his knees. He was telling her a story, no less than that of Goldilocks and the three well-known animals. She was listening. Was she listening? Eyes and mouth were hanging wide open; her lips wiggled every time his did.

He said, "This poor little miss is hypnotized, spellbound, mesmerized, under the power of my eloquence. A tremendous responsibility accompanies the gift of heaven in charming little childhood out of its little self. Her white soul is wax in my fingers. I am molding it to my will."

So, inspired by her 110 percent absorption in what he was saying, he stepped on the gas. He told such a story of Goldilocks and the three widely-advertised bears as never before was heard under any canvas. When he had spoken the last word, she said, "When I eat grapes, I spit black." (Laughter.)

Now, friends, it is hardly worth while going home for the rest of the night, anyway. I am going to give you a couple more minutes, because here is something that some nut here will ask me about if I don't give it. Somebody is going to say, "Why didn't you give 'Finnigin," if I leave it out, so I might as well let you have it. This is the story that once put a label on me for all time. I am glad it did; I am glad it didn't happen to somebody else, because I got a lot of fun out of it, and Mark Sullivan glorified me in "Our Times" with a couple of pages, and it got into my books and everything. If I don't give it, somebody always says, "Why didn't you?"

This is the story of how it happened, which might interest you, too. It ought to, because I am going to tell it. When I wrote this thing I was city editor of the Richmond, Ind., *Palladium*—try that on your ukelele. I was not only city editor—you haven't heard anything yet. I was all the reporters; I was the staff. I sent myself out after something and told myself to hurry back. On this one day there wasn't any news in that town, not a bit. You could stand on the corner of Eighth and Main by the Second National Bank and look four directions and it looked like Edinburgh on tag day. But the paper had to be filled, and I didn't know what to do about it. This thing I am going to give you in a minute or so, maybe, was already written in my head, but not on paper. I wasn't going to put it on paper. It was a frivolous thing and I wouldn't write a frivolous thing. But the trouble was it was knocking around inside my head alone. I saw if I didn't get it out of there, there would never be anything else in there, so I put it on paper.

When our paper came out with that in it that night, a lot of old, dried, desiccated, dehydrated, moldy prunes in that neighborhood who had never been known to smile since Heck was a young pup, called boisterously across the street "Hello, Finnigin!" and laughed out loud. I said to myself, "Say, what do you know about that? Hark, from the tombs a joyful sound. I have these mummies out doing the Black Bottom in their shrouds." (Laughter.)

This shouldn't have been sprung here. It should have been given a bigger audience. It was good—if I did write it myself and didn't mean to. Our circulation was only 300: our sworn circulation was only 1,600. (Laughter.) I hurriedly revamped the thing enough to save my face and prevent an accusation of presenting something already printed, and sent it to *New York Life*—and it is going yet.

Superintindint wuz Flannigan:
Boss av th' siction wuz Finnigin;
Whiniver th' kyars got offen th' thrack
An' muddled up things t' th' divil an' back,
Finnigin writ it to Flannigan
Afther th' wrick wuz all on agin;
That is, this Finnigin
Repoorted to Flannigan.

Whin Finnigin furst writ to Flannigan,
He writed tin pa-ages—did Finnigin.
An' he tould jist how th' smash occurred;
Full minny a tajus, blundherin' wurrd
Did Finnigin write to Flannigan.
After the kyars had gone on agin:
That wuz how Finnigin
Repoorted to Flannigan.

Now Flannigan knowed more than Finnigin—
He'd more idjuca-ation—had Flannigan;
An' it wore'm clane an' complately out

To tell what Finnigin writ about
In his writin' to Musther Flannigan.
So he writed back to Finnigin:
"Don't do sich a sin agin:
Make 'em brief, Finnigin!"

When Finnigin got this from Flannigan
He blushed rosy rid—did Finnigin:
An' he said: "I'll gamble a whole moonth's pa-ay
That it will be minny an' minny a da-ay
Before Sup'rintindint (that's Flannigan)
Gits a whack at this very same sin agin;
Frum Finnigin to Flannigan
Repoorts won't be long agin."

Wan da-ay on th' siction av Finnigin,
On the road sup'rintindid b' Flannigan,
A rail gave way on a bit av a curve
An' some kyars went off as they made th' swerve.
"There's nobody hurted," sez Finnigin,
"But reports must be made to Flannigan."
An' he winked at McGorrigan,
As married a Finnigin.

He wuz shantyin' thin, wuz Finnigin,
As minny a railroader's been agin.
An' th' shmoky ol' lamp wuz burnin' bright
In Finnigin's shanty all that night—
Bilin' down his repoort, wuz Finnigin!
An' he writed like this: "Musther Flannigan:
Off agin. On agin.
Gone agin.—Finnigin."

(Applause.)

Toastmistress Miller: Mr. Gillilan humorously suggested that I hadn't, as Toastmistress, fulfilled my entire duty by offering suggestions and explanations for each speaker, and all of a sudden it occurred to me that I really shouldn't let you go away without sending a message to your important Congress tomorrow as to what really appeals to me as being the need of the country. Looking over the dreadful floods of the past year and the troublesome, unruly rivers, I say to this Congress that it seems to me that what we really need is less rivers and more harbors. How can it be done?

Good night, friends.

IX

THE RADIO NEWS BROADCAST

NEWS BROADCAST OF THE KANSAS CITY AND HOUSTON CONVENTIONS[1]

QUIN A. RYAN

Mr. Ryan, Announcer for WGN, the *Chicago Tribune* radio station, broadcast oral descriptions from both of the nominating conventions of 1928. Compiled and reduced from his impromptu talks, the following article appeared in the *Extension Magazine*. It illustrates the narrative-descriptive news broadcast, a form of public speaking which has become of great importance as the radio has grown in popularity.

KANSAS CITY

So this is the hall in which the Democrats nominated Bryan in 1900 for the second time. It was razed by fire and rebuilt in sixty days, they say, just in time for the Fourth of July of that year. Looks smaller than the convening places of both parties the last few decades. And we, here on the speakers' platform, are located on the broad side of the hall. There are three radio announcers here to broadcast for three different radio systems—Graham McNamee and J. Andrew White, one on either end of the platform, and I'm almost in the center. I'm just an arm's length away from the small bridge that juts forward from the platform, on which the speaker of the moment stands behind a silver shelf of microphones.

We announcers are in the front row, at small tables. We have erected tiny glass cages a foot high to prevent our voices from carrying out over the heads of the newspapermen, who sit behind the shelves down in front of us. The lords of the convention, the members of the national committee, are arrayed behind us. This is part of the romance of broadcasting, that the reporter is assigned to a front seat at the great events of the nation.

Burning searchlights, like cannons on the balconies opposite, leer in our eyes. They flash on with the introduction of every new speaker. After the scores of cameramen have snapped their shutters and ground their film, the lights fade for a while. Out there are the thousand delegates, sprawled over yellow camp chairs and crowded in their allotted pens. State placards and "whoopee banners" aloft. Shirt sleeves and loud suspenders. Rust red necks and ice cream suits.

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I was just thinking of what an odd figure a radio announcer and his apparatus would have cut in this hall twenty-eight years ago. In those days the farmer heard the news when his metropolitan newspaper was delivered by the rural mailman and his jogging horse two days later; today he sits at his radio horn and is closer to the speaker than the delegates in the convention hall. He hears the shouts and the music and the harangues, and an announcer's voice, like a Greek chorus, identifies them for him. There is another microphone there on the shelf before the speaker which is recording all his words on records while a movie camera simultaneously photographs the scene for the talking moving pictures. Sights and sounds—everything but odor—are being preserved for future generations.

Underneath this platform is a labyrinth of wires. Millions of words are being telegraphed from here this week; even photographs are being transmitted over the wires, that they may be printed in New York and 'Frisco this evening. Verily, the world does move!

Sloping and curved rows of spectators' seats all around the oval auditorium. High above, more galleries where spectators stand. Out in front, the aisles, with the white state standards. The mass of delegates swarms and mills about, and ever and anon the bluish searchlights make side-swipes over their heads. Delegates are peculiar people; they rarely listen to all the proceedings, they converse and move hither and yon; they come to these conventions and pay their own way, because most of them are either major or minor office-holders under the party standards in their own states; and they seem to have little to say about the eventual outcome of it all, or even in the daily business of it, in this hall or in the private conferences. Let's see, what conventions have there been when the delegates really acted on their own—there was Bryan stampeding the convention in 1896 with his Cross of Gold speech, and there was Teddy Roosevelt leading a rebellion in the Chicago conclave, when he started the Bull Moose party.

Party conventions, as they appear to this observer in the front row, have lost the spontaneity that was the essence of them in their origin. It has been indubitably decided even two days before the first whack of the gavel that Herbert Hoover is to be the nominee. This show might be called the fable of the Steamroller and the Elephant. The performance seems to be planned entirely behind closed doors and then acted here in the hall, according to a scenario. Even we announcers are given a schedule at the beginning of each session, stating the wording of the motions to be made and the names of those who will make them. The bargaining of propositions and planks goes on in railroad cars and hotel rooms, and state delegations are swung from one candidate to another, while the majority of the humble delegates are concerned only with finding a good restaurant or extra cots on which to lay their drowsy heads.

This is certainly a business-like procedure. An ideal chairman, Senator Moses, of New Hampshire—witty, quick, alert, and forceful. His predecessor, the temporary chairman, Senator Fess, of Ohio, was not so successful; he has not the voice, nor the manner, nor the figure for the job. The art of oratory seems to be on the decline in the conventions. Robust voices are no longer needed, for loud-speaking horns carry the voice to the far ends of the hall. In the past, the party's most sensational spell-binders have been called into action in the national conventions. Several times in these sessions the chairman has rapped for order because delegates on the floor were calling, "Louder." The gentleman who read the Republican platform, Senator Smoot, of Utah, could not be heard at all; even the radio listeners telegraphed to request him to step closer to the microphone. Very soon the political leaders are going to recognize the need of presenting in convention the orators who make the best radio speakers. The ears of the nation are cocked to this hall in Kansas City. President Coolidge, for instance, makes a fine radio talk, although he is not a good orator to the naked ear. The best speeches of the Republican convention were the fiery plea of young Senator LaFollette, presenting the report of the minority, and the mellow oration by the veteran Senator Borah, of Idaho, in opposition.

I know it is not merely the fact that I am in this profession that makes me realize what a powerful factor this radio is going to be in politics and in these conventions. Methinks they ought to hold their most important sessions at night—when they deliver the keynote speech, the reading of the party platform, and the nominating addresses. It is a medium greater than the press for getting over their messages to the voters—and at no cost. Months later, when they are campaigning, it will cost them thousands of dollars to link up a radio chain to catch the ears of the populace. But all the sessions, except this current one, have been scheduled for the daylight hours, when most of the voters are engaged in their offices or shops or on their farms. We predict that by the time 1932 rolls around both parties will have arranged their rules of procedure to hold all sessions at night.

Famous faces all around us, surprisingly like the cartoons we have seen of them. Here on the platform sits William M. Butler, chairman of the national committee, and "the man behind Coolidge," immobile as a sphinx through all the sessions. Postmaster General New, with a wide black hat. Secretary of Labor Davis and Secretary of War Davis. The mayor of Chicago and the mayor of San Francisco. Out in one of the boxes I spy, through my field glasses, Senator James A. Reed of Missouri, a Democrat; this is his home and he has been invited to a seat in the camp of the rival chieftains. But the person who claims the most attention through every session is Mrs. Alice Roosevelt Longworth, wife of the Speaker of the House—a bit mellower in her poise and beauty than when she was the toast of the White House, as the young daughter of "T. R."

Out there, forever bobbing up and down the aisles, I see the sunburned face of her brother, Col. Theodore Roosevelt, Jr., a member of the New York delegation. The celebrities down there in the press section are as many and as interesting as those among the delegations. H. L. Mencken, with the round, wide-eyed face of a boy, is hurrying to and fro, stopping occasionally to look blandly up at a speaker. The white-haired and smiling Kansas editor, William Allen White, sits sometimes in his delegate seat. O. O. McIntyre, the chronicler of daily New York doings in the newspapers, with that long, slender, and lined face, looking bored and wistful.

But right down here in the front row of the delegates' seats is the sight that most fascinates me. There, through all the hours, sits Andrew Mellon, Secretary of the Treasury, as though he were in church. A delicately carved, "poker" face; meek-eyed, white-haired, and white-mustached. He looks as quietly and intently at every speaker as a schoolboy listening to his first Fourth of July oration. Beside him is the governor of Pennsylvania, and next to him William S. Vare, of Philadelphia, who has been denied his seat in the Senate. Vare and Mellon are political enemies, but they enter the hall together every time. It is rumored that the conference between them, shortly after their arrival in Kansas City, brought about the swing of the deciding Pennsylvania votes to Hoover.

Chairman Moses rushes the business along. There is little pageantry. Even the city has only plain bunting, nothing garish. There are campaign headquarters everywhere—Lowden, Curtis, Hoover—and religious propagandists, seeking to inject theories and planks into the party platform, have open headquarters in the busiest hotels.

Now, in the evening, the nominating is to start. The clerk is reading the roll call of the states. The fuse is smoldering; the mob is straining at the leash. Very soon pandemonium is to break loose. Arizona yields to California. John McNabb, a fellow townsman of Herbert Hoover, in Palo Alto, is being introduced. McNabb mentions Hoover's name in the first paragraph of his nominating speech, and the ensuing demonstration lasts twenty-three minutes. The mention of Hoover's name again at the end of the nominating speech brings forth a din which lasts twenty-five minutes. Herbert Hoover is nominated on the first ballot.

Houston

Here we are again, at another Democratic session. The Democrats have heeded the enormous audience that the radio offers them after dark, and they are holding night sessions for the workaday millions to listen in. This was officially decided after a debate in the national committee meeting, in which Senator Glass, of Virginia, holding out against the night sessions, declared that radio is "mostly static," anyway.

An astounding town, Houston. A clean, rich city of skyscrapers and fine shops and boulevards. Intensely blue sky and white sunlight. But the heat of the day is like the fierce glow of brick ovens. This is the first Democratic convention held in the South since 1860; so they are staging a great carnival for the visitors. The quantity of streamers and bunting and flags is dazzling. There was a hurry and rush of business in Kansas City, but down here it's like a lark. The same hubbub and milling crowds, but gayer. Gay clothes, and bright. Men all in white. Linen suits. Women in festive summer garb. Hawkers galore, selling canes, pennants, buttons, miniature donkeys. State delegations here dress in character—western delegates in eight-gallon hats—every delegation seems to have brought a band—there is music on the air day and night. The Democrats seem to make more of a show of it.

This vast hall seats 25,000, twice as many as the auditorium at Kansas City. There are no side walls—all open to the breezes which have been blowing accomodatingly every day. All afternoon the cruel Texas sun has been boring its burning blasts through the flimsy wooden roof of this open air tabernacle, and we have sat here on the platform drenched and gasping. In a country where siestas and leisure periods are in order on such blistering days, the delegates on the wooden seats and the gaily dressed ladies in the boxes have continued to fan themselves and dry their brows. Now it is evening, but it is still warm in here. The boxes, all around the square building, make it look like a summer evening dress ball or a midsummer opera performance.

Same searchlights, same newspapermen, same cameras—but here the delegates are steaming in white suits or shirtsleeves. New figures on the platform around us. And slower procedure. Here, on this platform, all eyes are focused through every session on Mrs. Woodrow Wilson, sitting just behind me. An unending line of visitors files past her, to greet her and receive a smile from her round, pleasant face. She changes her costume with every session. This is the seventh change she has made. Current celebrities and "hasbeens" move around the platform. Senator Pat Harrison, of Mississippi, with the face of an actor and the good nature of a clown; Josephus Daniels, resembling a caricature of himself when he was Secretary of the Navy; John W. Davis, who was the nominee four years ago; youthful-looking Jimmy Walker, Mayor of New York; Dan Moody, of Texas, the youngest governor in the States.

The 1,100 delegates are spread over the main floor, and the spectators bank the slopes. The other end of the hall, massed with people, is a city block distant.

There has been one demonstration this evening, by four state delegations, at the nomination of Senator George, of Georgia. The radio is going to be a lure to favorite sons. There will be many nominated merely for the publicity that the nation-wide radio chains will give them. Ah, well. Here is another cut-and-dried story—the nomination of Governor Al Smith has been assured long before his name will be put to the convention. Half way down the hall, far over in one of the side boxes, his buxom wife is watching these proceedings. There are three bands competing with one another in this hall. One is a most blatant, but stirring outfit, called the Old Gray Mare band, in cowboy attire. There have been good speakers here, too, and bad. The perennial figure of Bryan is noticeably absent for the first time. The chairman, a quiet man—kindly and strong featured—Senator Robinson, of Arkansas, is introducing Franklin D. Roosevelt, of New York. Roosevelt was once a vice-presidential nominee. In the convention four years ago he was wheeled in, in a chair. He suffers from infantile paralysis. Now he hobbles on a cane. He has the finest face in the hall. He starts to speak. The great clusters of horns hung like chandeliers down the length of the hall are carrying his voice to those listeners two hundred yards away.

Now he mentions the Governor of New York, and the lid is off!

Now the floor of the convention hall looks like the Kansas City floor at the first mention of Secretary Hoover's name, or like an enlarged photo of the famous wheat pit on one of its most rampant days. The enormous searchlights sweep over the hall, blinding us with their blue shafts. The thousands have leaped to their feet as though the building were on fire. The delegations snatch up their white standards and wave them like flagstaffs. Now they're starting to romp like college boys after a football victory. They are shouting and howling as they parade past us—Illinois, Iowa, Utah, Maine, California, Hawaii, Michigan, Connecticut, Ohio, Mississippi, Oklahoma, Wisconsin, Oregon, Nevada, and so on.

Cowbells and sirens and three bands playing. Here on the platform the folks are standing on their chairs. Some of the delegations remain coldly in their seats—Georgia, Missouri, Texas. The din surges louder and the procession is augmented. Somebody is toting a huge pasteboard replica of the Capitol dome, bearing the letters, "Al Smith." And the searchlights of the cameramen weave their way and sweep and sway around this noisy cauldron. Down the long, low, arched roof of this hall, the flags of all the states in the Union hang droopily and limply in the sweltering heat, while the thousand human jumping beans work themselves into a frenzy of excitement. All around the sides of the building the sweating hillsides of humanity are standing on tiptoe on their bare plank seats. The big lights glare impudently in our eyes. Down there they are waving hats and fans and state standards. They shout and whoop and strike one another on the back. Snake-dance lines of delegates are jostling forward through the aisles, flaunting over their heads the banners with the strange devices: North Dakota, Minnesota, Porto Rico, Arizona, District of Columbia, Washington, Indiana, and West Virginia. And the tumult of this demonstration is probably reverberating back over the plains to the north, and through the lonely swamp-lands and forests to the east and west, along the gulf.

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